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Fri 23 Feb 2001
Eff. Date 03/30/98

U.S. Army Corps of Engineers
PROJECT 1607N1: HANFORD: ER PROGRAM - REMEDIATION - IRM IMPLEMENTATION
Retention Basin Model - 3/30/98 - Rev. 2

TIME 11:26:33
TITLE PAGE 1

HANFORD: ER PROGRAM
REMEDIATION - IRM IMPLEMENTATION
1607N1 Sewage Treatment Tank
RETENTION BASIN MODEL
REV. 2a (Modified for D&D B/L)

Designed By: BHI - Estimating Group
Estimated By: BHI - Estimating Group

Prepared By: BHI - ESTIMATING

Preparation Date: 03/30/98
Effective Date of Pricing: 03/30/98

Sales Tax: 8.00%

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M C A C E S F O R W I N D O W S E D I T I O N
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Release 5.30C

This is an RA model that has been revised for use on the D&D baseline. The only thing changed was the removal of subcontractor overhead. Training was also removed since it is not considered in the rest of the D&D models. It should be noted that the equipment in this model is not from the BHI Equipment pool which is the equipment used by the D&D program since it is ERC work. It was not changed because of budget constraints.

This is one of the Remedial Action models that was revised around January of 1998. It was the first of the RA models to be updated/modified/corrected and was intended to be the basis model for use in the development of the remaining remedial action MCACES models.

Currently in this Model:

1. Direct Distributable Rate = 18.92%
2. General & Administrative = 4.04%
3. Subcontractor Overhead and Profit Rates are as follows:
 - a. Field Overhead = 10%
 - b. Home Office Overhead = 3%
 - c. Profit = 7%
 - d. Bond = Calculated within each model
 - e. B&O Tax = 0.47%
3. Contingency Rate = 15.7% (if desired)
4. The labor database used is located @ E:\readwrit\1999base\99tables\BHF98A, The ERC wages are dated 8/18/97 and the HSSA rates are dated 11/14/97.
5. The equipment database used is located @ E:\readwrit\1999base\99tables\NAT97C entitled "Eq. Rates EP 1110-1-8, VIII, Sep97+B"

Special Note #1

To satisfy procedural requirements items 1,2, 4 & 5 are subject to update before running model and issuing final results.

Special Note #2

Project approval of model applies to model structure/productivity/work approach/methodology/material pricing/unit pricing/resources, etc. excluding items in special note #1 above.

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| | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
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| . | HANFORD: ER PROGRAM | | | | |
| <hr/> | | | | | |
| HANFORD: ER PROGRAM | | | | | |
| <hr/> | | | | | |
| | PRODUCTIVITY | 18.0000 LS / | | | |
| | DURATION | 0.0556 | | | |
| A1 | 0 Non-Contaminated Soil | | | | |
| | Non-Contaminated Soil | N | | 50000.0000 | BCF |
| A1 | 0 Non-Contaminated Soil | | | | 50000.0000 BCF |
| A3 | 0 Contaminated Soil | | | | |
| | Contaminated Soil | N | | 0.0000 | BCF |
| A3 | 0 Contaminated Soil | | | | 0.0000 BCF |
| A4 | 0 Demolition Waste | | | | |
| | Demolition Waste | N | | 4000.0000 | |
| A4 | 0 Demolition Waste | | | | 4000.0000 BCF |
| A5 | 0 Top Excavation Length | | | | |
| | Top Excavation Length | N | | 80.0000 | LF |
| A5 | 0 Top Excavation Length | | | | 80.0000 LF |
| A6 | 0 Top Excavation Width | | | | |
| | Top Excavation Width | N | | 80.0000 | LF |
| A6 | 0 Top Excavation Width | | | | 80.0000 LF |
| A7 | 0 Bottom Area | | | | |
| | Bottom Area | N | | 400.0000 | SF |
| A7 | 0 Bottom Area | | | | 400.0000 SF |
| A8 | 0 GW Protection Smpls (S3,M21,L60) | | | | |
| | GW Protection Smpls (S3,M21,L60) | N | | 0.0000 | |

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|---------|------------------------------------|-----------|----------|----------------------------|---------------|
| A8 | 0 GW Protection Smpls (S3,M21,L60) | | | | 0.0000 EA |
| A9 | 0 Depth of Excavation | | | | |
| | DEPTH OF EXCAVATION | N | 15.0000 | | LF |
| A9 | 0 Depth of Excavation | | | | 15.0000 LF |
| ABURDN0 | Non Contaminated Soil - Reduced | | | | |
| | Non-Contaminated Soil | W A1 | 0 (| 50000.0000 / Divide by | BCF |
| | Convert to Cubic Yards | N | | 27.0000 * Multiply by | CF/CY |
| | Swell Factor | N | | 1.1500) * Multiply by | % |
| | | N | | 1.0000 | |
| ABURDN0 | Non Contaminated Soil - Reduced | | | | 2129.6296 LCY |
| ACSOILO | Contaminated Soil | | | | |
| | Contaminated Soil | W A3 | 0 (| 0.0000 / Divide by | BCF |
| | Convert to Cubic Yards | N | | 27.0000 * Multiply by | CF/CY |
| | Swell Factor | N | | 1.1500) M (R) Multiply by | |
| | | N | | 1.0000 | |
| ACSOILO | Contaminated Soil | | | | 0.0000 LCY |
| ADISBRO | Hauling Distance for Borrow | | | | |
| | Hauling Distance for Borrow | N | | 1.0000 | MILE |
| ADISBRO | Hauling Distance for Borrow | | | | 1.0000 MILE |
| ADWAST0 | Demolition Waste | | | | |
| | Demolition Waste | W A4 | 0 (| 4000.0000 / Divide by | BCF |
| | Convert to Cubic Yds. | N | | 27.0000) M (R) Multiply by | BCF/BCY |
| | Swell | N | | 1.6000 | |
| ADWAST0 | Demolition Waste | | | | 237.0000 LCY |
| AREAST0 | Site Area | | | | |
| | | N | (| 0.0000 N None | |
| | Top Excavation Length | W A5 | 0 (| 80.0000 + Add to | LF |

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| . HANFORD: ER PROGRAM | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|------------------------------------|-----------|-----------|-------------------|-----------------|---------------|
| Add 30 lf to each side | N | 60.0000) | * | Multiply by | LF |
| Top Excavation Width | W A6 | 0 (| 80.0000 | + Add to | LF |
| Add 30 lf to each side | N | 60.0000) | N | None | LF |
| | N | 0.0000) | U | Round Up | |
| | N | 1.0000 | | | |
| AREAST0 Site Area | | | | | 19600.0000 SF |
| BORROW0 Borrow to Haul | | | | | |
| Volume of excavation | N | 0.0000 | N | None | |
| Contaminated Soil | W A3 | 0 (| 0.0000 | + Add to | BCF |
| Non-Contaminated Soil | W A1 | 0 | 50000.0000 | + Add to | BCF |
| Demolition Waste | W A4 | 0 | 4000.0000) | B (R) Divide by | BCF |
| Convert to Cubic Yards | N | 27.0000 | M (R) Multiply by | | |
| 10% allowance for compaction | N | 1.1000 | | | |
| BORROW0 Borrow to Haul | | | | | 2200.0000 LCY |
| CONDUR0 Contaminated Duration | | | | | |
| Contaminated Soil | N | (| 0.0000 | N | None |
| | W ACSOIL0 | | 0.0000 | / Divide by | LCY |
| Excav. Rate @ 83 LCY/Hr x 8 | N | 664.0000 | + Add to | | LCY/DAY |
| Demolition Waste | W ADWAST0 | 237.0000 | / Divide by | | LCY |
| Excav. Rate @ 70 LCY/Hr x 8 | N | 560.0000) | U Round Up | | LCY/DAY |
| | N | 1.0000 | | | |
| CONDUR0 Contaminated Duration | | | | | 1.0000 DAYS |
| CONTRK0 Contaminated Loads | | | | | |
| Contaminated Soil | N | (| 0.0000 | N | None |
| | W ACSOIL0 | (| 0.0000 | + Add to | LCY |
| Demolition Waste | W ADWAST0 | 237.0000) | / Divide by | | LCY |
| | N | 12.8700) | U Round Up | | LCY/TRK |
| | N | 1.0000 | | | |
| CONTRK0 Contaminated Loads | | | | | 19.0000 LOADS |
| CYCLES0 Number of Cycles/Truck/Day | | | | | |
| Assume 50 Min. Hours | N | (| 50.0000 | * | Multiply by |
| 8 Hrs/Day | N | | 8.0000 | / Divide by | MIN/HR |
| Total Cycle Time for Borrow | W TIMTOTO | | 9.1096) | D Round Down | MIN |
| | N | | 1.0000 | | |

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|-----------------------|-----------|-----------|----------|-------------|--------------|

CYCLES0 Number of Cycles/Truck/Day 43.0000 CYCLES

DAYPRO0 Total Project Duration

| | | | | |
|----------------------------------|-------------|-------------|---------------|--------|
| Spread/Compact Soil Qty | N (| 0.0000 | N None | |
| | W BORROW0 (| 2200.0000 | / Divide by | LCY |
| Productivity per Day (219 LCY/hr | N | 1752.0000) | + Add to | CY/DAY |
| Site Area | W AREAST0 (| 19600.0000 | / Divide by | SF |
| Dryland Grass Productivity / Day | N (| 348480.0000 | * Multiply by | SF/DAY |
| 1/2 Production, 2 Tractors | N | 0.5000) | N None | |
| | N | 0.0000) | + Add to | |
| Total Excavation Duration | W DAYS 0 | 9.0000 | + Add to | DAY |
| Allowance for Mobilization | N | 12.0000) | U Round Up | DAY |
| | N | 1.0000 | | |

DAYPRO0 Total Project Duration 23.0000 DAY

DAYS 0 Total Excavation Duration

| | | | | |
|--------------------------------|-------------|-----------|-------------|---------|
| Non Contaminated Soil | W ABURDN0 (| 2129.6296 | / Divide by | LCY |
| Productivity per Day | N | 1168.0000 | + Add to | LCY/DAY |
| Demolition Waste Loading | W ADWAST0 | 237.0000 | / Divide by | LCY |
| Productivity per Day | N | 560.0000 | + Add to | LCY/DAY |
| Demolition Waste (demolishing) | W ADWAST0 | 237.0000 | / Divide by | LCY |
| Productivity per Day | N | 40.0000 | + Add to | LCY/DAY |
| Contaminated Soil | W ACSOIL0 | 0.0000 | / Divide by | LCY |
| Productivity per Day | N | 664.0000) | U Round Up | LCY/DAY |
| | N | 1.0000 | | |

DAYS 0 Total Excavation Duration 9.0000 DAYS

DURBORG0 Total Truck Hours

| | | | | |
|----------------------------------|-----------|-----------|-------------------|--------|
| Borrow to Haul | W BORROW0 | 2200.0000 | / Divide by | LCY |
| Load/Haul Borrow Production Rate | N | 219.0000 | M (R) Multiply by | LCY/HR |
| Number of Trucks Reqd for Borrow | W NUMTRK0 | 3.0000 | | TRKS |

DURBORG0 Total Truck Hours 30.0000 HRS

LNGSLA0 Long Slope Area

| | | | | |
|-----------------------|--------|---------|-----------------|----|
| Top Excavation Length | N (| 0.0000 | N None | |
| | N (| 0.0000 | N None | |
| | N (| 0.0000 | N None | |
| | W A5 0 | 80.0000 | * Multiply by | LF |
| | N | 2.0000 | - Subtract Next | |

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| . HANFORD: ER PROGRAM | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|--|-------------|-------------------------|-----------------------------|--------------|--------------|
| Depth of Excavation | N W A9 0 | 3.0000 15.0000) | * Multiply by / Divide by | | LF |
| Depth of Excavation | N W A9 0 (| 2.0000) 15.0000 | * Multiply by / Divide by | | LF |
| 2 Sides | N N 2.0000 | 0.5500) 0.0000) 0.0000) | N None N None * Multiply by | | |
| LNGSLA0 Long Slope Area | | | | 3136.3636 SF | |
| NUMTRK0 Number of Trucks Rqrd for Borrow | | | | | |
| Total Loading Output | N N | (219.0000 8.0000 | * Multiply by / Divide by | | LCY/HR |
| Convert to Days | | | | | HR/DAYS |
| Number of Cycles/Day/Truck | W CYCLES0 | 43.0000 | B (R) Divide by | | CYCLES |
| Truck Capacity | N | 15.0000) | | | LCY |
| NUMTRK0 Number of Trucks Rqrd for Borrow | | | | 3.0000 TRKS | |
| QTYLLW0 LLW Volume | | | | | |
| Contaminated Soil | W ACSOIL0 | 0.0000 | + Add to | | LCY |
| Demolition Waste | W ADWAST0 | 237.0000 | | | LCY |
| QTYLLW0 LLW Volume | | | | 237.0000 LCY | |
| SAMPCR0 Bottom Area Closure Sample Qty | | | | | |
| Bottom Area | W A7 0 (| 400.0000 | + Add to | | SF |
| Long Slope Area | W LNGSLA0 | 3136.3636 | + Add to | | SF |
| Short Slope Area | W SHSHARE0 | 3136.3636) | B (R) Divide by | | SF |
| Sample Frequency | N (| 6264.0000) | > Greater of | | SF |
| Minimum of 6 Samples | N | 6.0000 | | | |
| SAMPCR0 Bottom Area Closure Sample Qty | | | | 1.0000 EA | |
| SAMPHR0 In Situ Monitor=Tot Excavtn Dur | | | | | |
| Non-Contaminated Soil | W ABURDN0 (| 2129.6296 | B (R) Divide by | | LCY |
| Productivity | N | 146.0000) | + Add to | | LCY/HR |
| Contaminated Soil | W ACSOIL0 (| 0.0000 | B (R) Divide by | | LCY |
| Productivity | N | 83.0000) | + Add to | | LCY/HR |
| Demolition Waste | W ADWAST0 (| 237.0000 | B (R) Divide by | | LCY |
| SAMPHR0 In Situ Monitor=Tot Excavtn Dur | | | | 18.0000 HR | |

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| <hr/> | | | | | |
| SAMPML0 Regular LLW Samples - Mobile Lab | | | | | |
| Contaminated Soil | W ACSOIL0 (| 0.0000 | + Add to | | LCY |
| Demolition Waste | W ADWAST0 | 237.0000) | B (R) Divide by | | LCY |
| | N (| 845.0000) | > Greater of | | LCY/HR |
| Minimum of 6 ea | N | 6.0000 | | | |
| <hr/> | | | | | |
| SAMPML0 Regular LLW Samples - Mobile Lab | | | | 0.0000 EA | |
| <hr/> | | | | | |
| SAMPNC0 Non-Contam Sample Quantity | | | | | |
| Non Contaminated Soil | W ABURDN0 (| 2129.6296) | < Lesser of | | LCY |
| | N | 6.0000 | | | |
| <hr/> | | | | | |
| SAMPNC0 Non-Contam Sample Quantity | | | | 6.0000 EA | |
| <hr/> | | | | | |
| SAMPQ10 QC Samples | | | | | |
| GW Protection Smpls (S3,M21,L60) | N (| 0.0000 | N None | | |
| | W A8 0 (| 0.0000 | + Add to | | EA |
| BOTTOM AREA CLOSURE SAMPLE QTY. | W SAMPCR0 | 1.0000 | + Add to | | EA |
| Non-Contam Sample Quantity | W SAMPNC0 | 6.0000 | + Add to | | EA |
| Regular LLW Samples - Mobile Lab | W SAMPML0 | 0.0000) | * Multiply by | | EA |
| 5% QC SAMPLES | N | 0.0500) | U Round Up | | |
| MINIMUM QUANTITY, 3 EA | N | 1.0000 | > Greater of | | |
| | N | 3.0000 | | | |
| <hr/> | | | | | |
| SAMPQ10 QC Samples | | | | 3.0000 EA | |
| <hr/> | | | | | |
| SAMPTF0 Total Off-Site Samples | | | | | |
| Bottom Area Closure Sample Qty | W SAMPCR0 | 1.0000 | + Add to | | EA |
| GW Protection Smpls (S3,M21,L60) | W A8 0 | 0.0000 | + Add to | | EA |
| QC Samples | W SAMPQ10 | 3.0000 | | | EA |
| <hr/> | | | | | |
| SAMPTF0 Total Off-Site Samples | | | | 4.0000 EA | |
| <hr/> | | | | | |
| SAMPTO0 Total On-Site Samples | | | | | |
| Regular LLW Samples - Mobile Lab | W SAMPML0 | 0.0000 | + Add to | | EA |
| Non-Contam Sample Quantity | W SAMPNC0 | 6.0000 | | | EA |
| <hr/> | | | | | |
| SAMPTO0 Total On-Site Samples | | | | 6.0000 EA | |
| <hr/> | | | | | |
| SHSHARE0 Short Slope Area | | | | | |

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| Top Excavation Width | N (| 0.0000 | N None | | |
| | N (| 0.0000 | N None | | |
| | W A6 0 (| 80.0000 | * Multiply by | LF | |
| | | 2.0000 | - Subtract Next | | |
| | | 3.0000 | * Multiply by | | |
| Depth of Excavation | W A9 0 | 15.0000) | / Divide by | LF | |
| | N (| 2.0000) | * Multiply by | | |
| Depth of Excavation | W A9 0 (| 15.0000 | / Divide by | LF | |
| | | 0.5500) | N None | | |
| | | 0.0000) | N None | | |
| | | 0.0000) | * Multiply by | | |
| 2 Sides | N | 2.0000 | | | |
| SHSARE0 Short Slope Area | | | | | 3136.3636 SF |
| SITEPRO Site Perimeter | | | | | |
| Top Excavation Length | N (| 0.0000 | N None | | |
| Add 30 lf to each side | W A5 0 (| 80.0000 | + Add to | LF | |
| 2 sides | N | 60.0000) | * Multiply by | LF | |
| | N | 2.0000 | + Add to | | |
| Top Excavation Width | W A6 0 (| 80.0000 | + Add to | LF | |
| Add 30 lf to each side | N | 60.0000) | * Multiply by | LF | |
| 2 sides | N | 2.0000) | U Round Up | | |
| | N | 1.0000 | | | |
| SITEPRO Site Perimeter | | | | | 560.0000 LF |
| TIMTOT0 Total Cycle Time for Borrow | | | | | |
| Loading Time for Borrow | N | 0.0000 | N None | | |
| Truck Capacity | N (| 15.0000 | / Divide by | LCY | |
| Total Loading Output | N | 219.0000 | + Add to | LCY/HR | |
| Hauling Time for Borrow | N | 0.0000 | N None | | |
| Hauling Distance for Borrow | W ADISBR0 | 1.0000 | / Divide by | MILE | |
| Hauling Speed for Borrow | N | 30.0000 | + Add to | MPH | |
| Dump Time | N | 0.0250 | + Add to | HR | |
| Return Time for Borrow | N | 0.0000 | N None | | |
| Hauling Distance for Borrow | W ADISBR0 | 1.0000 | / Divide by | MILE | |
| Return Speed for Borrow | N | 40.0000) | * Multiply by | MPH | |
| Convert to minutes | N | 60.0000 | | | MIN/HR |
| TIMTOT0 Total Cycle Time for Borrow | | | | | 9.1096 MIN |
| TOTPPE0 Total PPE Sets | | | | | |
| Total Excavation Duration | W DAYS 0 | 9.0000 | * Multiply by | DAYS | |
| 2 Changes per day | N | 2.0000 | * Multiply by | | |

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|------------------------|-----------|-----------|----------|-------------|--------------|
| 4 Workers | N | 4.0000 | | | |
| TOTPPE0 Total PPE Sets | | | | | 72.0000 SETS |

WASTONO Tonnage of Waste

| | | | | |
|-------------------|-----------|----------|---------------|---------|
| Contaminated Soil | W ACSOIL0 | 0.0000 | * Multiply by | LCY |
| | N | 1.5000 | + Add to | TON/LCY |
| Demolition Waste | W ADWAST0 | 237.0000 | * Multiply by | LCY |
| | N | 1.2700 | | |

WASTONO Tonnage of Waste 300.9900 TONS

0 HANFORD: ER PROGRAM 1.0000 EA

01 Mobilization & Prep Work 1.0000 LS

01.04.05 Decon Fac. for Const. Equip/Veh. 24.0000 HR

| | |
|--------------|---------------|
| PRODUCTIVITY | 1.0000 HR /HR |
| DURATION | 24.0000 HR |

| | | | | | |
|------------------------------------|---|------------|-------------------|--------|------------|
| 1 Laborer Group (3 ea.) | D | 24.0000 HR | M (R) Multiply by | 3.0000 | 72.0000 HR |
| 2 OPERATING ENGINEERS (1 ea) | D | 24.0000 HR | M (R) Multiply by | 1.0000 | 24.0000 HR |
| 3 TRK,HWY,4X4,F250,3/4T,8800 GVW | D | 24.0000 HR | M (R) Multiply by | 1.0000 | 24.0000 HR |
| 4 HYD EXCAV,TRK MTD,0.500CY,TB,6X4 | D | 24.0000 HR | M (R) Multiply by | 1.0000 | 24.0000 HR |
| 5 Small Tools - 3 ea | D | 24.0000 HR | M (R) Multiply by | 3.0000 | 72.0000 HR |

01.04.11 Barricades (Install Temp. Fence)
W SITEPRO
PRODUCTIVITY
DURATION

| | |
|-----------------|--|
| 560.0000 LF | |
| 100.0000 LF /HR | |
| 5.6000 HR | |

| | | | | | |
|----------------------------------|---|-------------|-------------------|--------|-------------|
| 1 Laborer Group - 1 (2 ea.) | D | 5.6000 HR | M (R) Multiply by | 2.0000 | 11.0000 HR |
| 2 Truck Drivers (1 ea) | D | 5.6000 HR | M (R) Multiply by | 1.0000 | 6.0000 HR |
| 3 Trl,Hwy,4X2,F350,1T,10000 GVW | D | 5.6000 HR | M (R) Multiply by | 1.0000 | 6.0000 HR |
| 4 Truck Opt,Flatbed, 8' x 12.0' | D | 5.6000 HR | M (R) Multiply by | 1.0000 | 6.0000 HR |
| 5 Small Tools - 2 ea | D | 5.6000 HR | M (R) Multiply by | 2.0000 | 11.0000 HR |
| 6 Materials/Supply Allowance for | P | 560.0000 LF | M (R) Multiply by | 1.0000 | 560.0000 LF |

01.06 Temp Relocatns/Roads/Struct/Util
W QTYLLW0
237.0000 LCY

01.06.01 Roads (Site Road Maintenance)
W QTYLLW0
237.0000 LCY

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| 01.06.01. Roads (Site Road Maintenance) REFERENCE | | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|---|--------------|-----------|-----------------------|-------------|--------------|
| Site Road Maintenance | W QTYLLW0 | 237.0000 | LCY M (R) Multiply by | 1.0000 | 237.0000 |
| 02 Monitoring, Sampling, & Analysis | | | | 1.0000 | LS |
| 02.08.05 Sub-Surface Soil (Field Screen- | W DAYS 0 | 9.0000 | DAY | 8.0000 | 72.0000 HRS |
| 1 ERC Environmental Tech. (.5 ea) | P | 72.0000 | HRS M (R) Multiply by | 0.5000 | 36.0000 HR |
| 2 RADIATION CONTROL TECH. (1 ea) | P | 72.0000 | HRS M (R) Multiply by | 1.0000 | 72.0000 HR |
| 3 In Situ Monitoring Equip. | P | 72.0000 | HRS M (R) Multiply by | 0.0000 | 0.0000 HR |
| 02.08.91 Excav. GW Prot. Sample Trenches | W A8 0 | 0.0000 | EA | 3.0000 | 0.0000 EA |
| 02.08.92 Site Certificaton Sampling | W SAMPCR0 | 1.0000 | EA | 1.0000 | 1.0000 EA |
| | PRODUCTIVITY | 3.0000 | EA /HR | | |
| | DURATION | 0.3333 | HR | | |
| 1 ERC Sampler (1 ea) | D | 0.3333 | HR M (R) Multiply by | 1.0000 | 0.0000 HR |
| 2 RADIATION CONTROL TECH. (1 ea) | D | 0.3333 | HR M (R) Multiply by | 1.0000 | 0.0000 HR |
| 3 Materials/Supplies Allowance | P | 1.0000 | EA M (R) Multiply by | 1.0000 | 1.0000 EA |
| 02. Analyze LLW Sample - Mobile Lab | W SAMPML0 | 0.0000 | EA M (R) Multiply by | 1.0000 | 0.0000 EA |
| 02. Analyze Quality Control Samples | W SAMPQ10 | 3.0000 | EA M (R) Multiply by | 1.0000 | 3.0000 EA |
| 02. Analyze Site Certification | W SAMPCR0 | 1.0000 | EA M (R) Multiply by | 1.0000 | 1.0000 EA |
| 02. Groundwater Protection Samples | W A8 0 | 0.0000 | EA M (R) Multiply by | 1.0000 | 0.0000 EA |
| 02. Non-Contam Sample Quantity | W SAMPNC0 | 6.0000 | EA M (R) Multiply by | 1.0000 | 6.0000 EA |
| 08 Solids Collection & Containment | | | | 1.0000 | LS |
| 08.01 Contaminated Soil Collection | | | | 1.0000 | LS |
| 08.01.02.01 Excavate/Load Contaminated Soil | W ACSOIL0 | 0.0000 | LCY | 1.0000 | 0.0000 LCY |
| | PRODUCTIVITY | 83.0000 | LCY/HR | | |
| | DURATION | 0.0000 | HR | | |
| 1 Heavy Equipment Operator (1 ea) | D | 0.0000 | HR M (R) Multiply by | 1.0000 | 0.0000 HR |
| 2 HYD EXCAV, CRWLR, 2.00 CY BKT | D | 0.0000 | HR M (R) Multiply by | 1.0000 | 0.0000 HR |
| 08.01.02.02 Provide Dust Suppression | W ACSOIL0 | 0.0000 | LCY | 1.0000 | 0.0000 LCY |
| | PRODUCTIVITY | 83.0000 | LCY/HR | | |
| | DURATION | 0.0000 | HR | | |

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08.01.02.02. Provide Dust Suppression
** LINK LISTING **

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| 08.01.02.02. Provide Dust Suppression | | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|---------------------------------------|----------------------------------|--------------|-----------------|-------------------|-------------|---------------|
| <hr/> | | | | | | |
| 1 | Heavy Truck Driver | D | 0.0000 HR | M (R) Multiply by | 1.0000 | 0.0000 HR |
| 2 | Trl,Wtr,Off-Hwy, 6000GAL,Cat621E | D | 0.0000 HR | M (R) Multiply by | 1.0000 | 0.0000 HR |
| <hr/> | | | | | | |
| 08.01.03 Hauling (To Queue Area) | | | | | | |
| | | W CONDUR0 | 1.0000 DAY | | 8.0000 | 8.0000 HRS |
| 1 | Truck Drivers (3 ea) | P | 8.0000 HRS | M (R) Multiply by | 3.0000 | 24.0000 HR |
| 2 | TRK,HWY, 46,000 GVW, 6X4, 3 AXLE | P | 8.0000 HRS | M (R) Multiply by | 3.0000 | 24.0000 HR |
| 3 | 20 Ton Tilt Trailer | P | 8.0000 HRS | * Multiply by | 3.0000 | 24.0000 HR |
| <hr/> | | | | | | |
| 08.01.04.01 Excavate and Stockpile | | | | | | |
| | | W ABURDN0 | 2129.6296 LCY | | 1.0000 | 2129.6296 LCY |
| | | PRODUCTIVITY | 146.0000 LCY/HR | | | |
| | | DURATION | 14.5865 HR | | | |
| 1 | Heavy Equipment Operator (1 ea) | D | 14.5865 HR | M (R) Multiply by | 1.0000 | 15.0000 HR |
| 2 | HYD EXCAV, CRWLR, 2.00 CY BKT | D | 14.5865 HR | M (R) Multiply by | 1.0000 | 15.0000 HR |
| 3 | Heavy Truck Driver (2 ea) | D | 14.5865 HR | M (R) Multiply by | 2.0000 | 29.0000 HR |
| 4 | Trk,Off-Hwy,R-Dump, 15-19CY, 25T | D | 14.5865 HR | M (R) Multiply by | 2.0000 | 29.0000 HR |
| <hr/> | | | | | | |
| 08.01.04.02 Provide Dust Suppression | | | | | | |
| | | W ABURDN0 | 2129.6296 LCY | | 1.0000 | 2129.6296 LCY |
| | | PRODUCTIVITY | 146.0000 LCY/HR | | | |
| | | DURATION | 14.5865 HR | | | |
| 1 | Truck Driver (1 ea) | D | 14.5865 HR | M (R) Multiply by | 1.0000 | 15.0000 HR |
| 2 | Trk,Wtr,Off-Hwy, 6000GAL,CAT621E | D | 14.5865 HR | M (R) Multiply by | 1.0000 | 15.0000 HR |
| 3 | Material Cost for Soil Sement | W ABURDN0 | 2129.6296 LCY | * Multiply by | 1.0000 | 2129.6296 LCY |
| <hr/> | | | | | | |
| 08.01.91.01 Low Activity Containers | | | | | | |
| | | W CONDUR0 | 1.0000 DAY | | 8.0000 | 8.0000 HRS |
| | | PRODUCTIVITY | 1.0000 HRS/HR | | | |
| | | DURATION | 8.0000 HR | | | |
| 01 | Radiation Control Tech. (3 ea) | P | 8.0000 HRS | M (R) Multiply by | 3.0000 | 24.0000 HR |
| <hr/> | | | | | | |
| 08.01.91.02 Decontaminate Containers | | | | | | |
| | | W CONDUR0 | 1.0000 DAY | | 8.0000 | 8.0000 HR |
| | | PRODUCTIVITY | 1.0000 HR /HR | | | |
| | | DURATION | 8.0000 HR | | | |
| 1 | Laborer (3 ea) | P | 8.0000 HR | M (R) Multiply by | 3.0000 | 24.0000 S1 |
| 2 | Press Washer, 5.4GPM, 3KSI,PORT | P | 8.0000 HR | M (R) Multiply by | 1.0000 | 8.0000 HR |
| 3 | Small Tools - 3 ea | P | 8.0000 HR | M (R) Multiply by | 3.0000 | 24.0000 HR |
| <hr/> | | | | | | |
| 08.01.92 Queue Area Operations | | | | | | |
| | | W CONDUR0 | 1.0000 DAY | | 8.0000 | 8.0000 HRS |

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08.01.92. Queue Area Operations
** LINK LISTING **

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SETTINGS PAGE 11

| 08.01.92. Queue Area Operations | | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM | |
|--|----------------------------------|------------------------|----------------|-----------------|-----------------|--------------|------------|
| | | PRODUCTIVITY | 1.0000 HRS/HR | | | | |
| | | DURATION | 8.0000 HR | | | | |
| 1 | Laborers (2 ea) | P | 8.0000 HRS M | (R) Multiply by | 2.0000 | 16.0000 HR | |
| 2 | Radiation Control Tech. (.5 ea) | P | 8.0000 HRS M | (R) Multiply by | 0.5000 | 4.0000 HR | |
| 3 | Container liners | W CONTRK0 | 19.0000 LOA M | (R) Multiply by | 1.0000 | 19.0000 EA | |
| 08.01.93 Radiation Control Tech. Support | | W DAYS 0 | 9.0000 DAY | | 8.0000 | 72.0000 HRS | |
| | | PRODUCTIVITY | 1.0000 HRS/HR | | | | |
| | | DURATION | 72.0000 HR | | | | |
| 1 | Radiation Control Tech. (1.5 ea) | P | 72.0000 HRS M | (R) Multiply by | 1.5000 | 108.0000 HR | |
| 08. | Allowance for Mobile Site | W DAYS 0 | 9.0000 DAY B | (R) Divide by | 30.0000 | 0.0000 MO | |
| 08. | ERC PPE (Subcontractor Supplied) | W TOTPPE0 | 72.0000 SET * | Multiply by | 1.0000 | 72.0000 | |
| 08. | S/C PPE (Subcontractor Supplied) | W TOTPPE0 | 72.0000 SET * | Multiply by | 1.0000 | 72.0000 | |
| 08.01.95.02 Laundry Services | | PRODUCTIVITY | 1.0000 LS /HR | | | 0.0000 LS | |
| | | DURATION | 0.0000 HR | | | | |
| | | Regulated PPE Laundry | W DAYS 0 | 9.0000 DAY M | (R) Multiply by | 8.0000 | 72.0000 HR |
| | | Mask Cleaning Services | W DAYS 0 | 9.0000 DAY B | (R) Divide by | 30.0000 | 0.0000 MO |
| 10.03.02 Demolition | | W ADWAST0 | 237.0000 LCY | | 1.0000 | 237.0000 LCY | |
| | | PRODUCTIVITY | 5.0000 LCY/HR | | | | |
| | | DURATION | 47.4000 HR | | | | |
| 01 | Laborers (1 ea) | D | 47.4000 HR M | (R) Multiply by | 1.0000 | 47.0000 HR | |
| 02 | Operating Engineers (1 ea) | D | 47.4000 HR M | (R) Multiply by | 1.0000 | 47.0000 HR | |
| 03 | CONC PULVERIZER, 42"THICK, 30"W | D | 47.4000 HR M | (R) Multiply by | 1.0000 | 47.0000 HR | |
| 04 | HYD EXCAV, CRWLR, 2.88 CY BKT | D | 47.4000 HR M | (R) Multiply by | 1.0000 | 47.0000 HR | |
| 05 | Small Tools (1 ea) | D | 47.4000 HR M | (R) Multiply by | 1.0000 | 47.0000 HR | |
| 10.06.01 LSA (Low Specific Activity) | | W ADWAST0 | 237.0000 LCY | | 1.0000 | 237.0000 LCY | |
| | | PRODUCTIVITY | 70.0000 LCY/HR | | | | |
| | | DURATION | 3.3857 HR | | | | |
| 01 | Operating Engineers (1 ea) | D | 3.3857 HR * | Multiply by | 1.0000 | 3.3857 HR | |
| 02 | HYD EXCAV, CRWLR, 2.88 CY BKT | D | 3.3857 HR * | Multiply by | 1.0000 | 3.3857 HR | |
| 20 Site Restoration | | | | | 1.0000 | LS | |

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20.01.03. Load/Haul Borrow (Backfill)
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| 20.01.03. Load/Haul Borrow (Backfill) | | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|--|----------------------------------|-----------|---------------|-----------------|-------------|---------------|
| <hr/> | | | | | | |
| 20.01.03 Load/Haul Borrow (Backfill) | | | | | | |
| <hr/> | | | | | | |
| 1 | Heavy Equipment Operator | D | W BORROW0 | 2200.0000 LCY | 1.0000 | 2200.0000 LCY |
| 2 | Ldr,FE, WH, 4.50 CY, Artic, 966E | D | PRODUCTIVITY | 219.0000 LCY/HR | | |
| 3 | Heavy Truck Driver | | DURATION | 10.0457 HR | | |
| 4 | Trk,Off-Hwy,R-Dump, 15-19CY, 25T | W DURBORG | | | | |
| 1 | Heavy Equipment Operator | D | W BORROW0 | 2200.0000 LCY | 1.0000 | 2200.0000 LCY |
| 2 | Ldr,FE, WH, 4.50 CY, Artic, 966E | D | PRODUCTIVITY | 219.0000 LCY/HR | | |
| 3 | Heavy Truck Driver | | DURATION | 10.0457 HR | | |
| 4 | Trk,Off-Hwy,R-Dump, 15-19CY, 25T | W DURBORG | | | | |
| 20.01.06 Spreading (Spread/Comp. Borrow) | | | | | | |
| 1 | Heavy Truck Driver (1 ea) | D | W BORROW0 | 2200.0000 LCY | 1.0000 | 2200.0000 LCY |
| 2 | Trk,Wtr,Off-Hwy, 6000GAL,Cat621E | D | PRODUCTIVITY | 219.0000 LCY/HR | | |
| 3 | Heavy Equipment Operator (1 ea) | D | DURATION | 10.0457 HR | | |
| 4 | DOZER, CRWLR, 251-300 HP | D | | | | |
| 20.04.01 Mech. Seeding with Fertilizer | | | | | | |
| 1 | Operating Engineers (2 ea) | P | W AREAST0 | 19600.0000 SF | 43560.0000 | 0.4500 HRS |
| 2 | 4 Wheel Drive Tractor (Farm) | P | PRODUCTIVITY | 1.0000 HRS/HR | | |
| 3 | Mulch Spreader (1 ea) | P | DURATION | 0.4500 HR | | |
| 4 | Tiller (1 ea) | P | | | | |
| 5 | Primary Seeder (1 ea) | P | | | | |
| 6 | Seed, Fertilizer and Mulch | P | | | | |
| 20.04.04 Shrubs/Trees/Groundcover | | | | | | |
| 1 | Operating Engineers (2 ea) | P | W AREAST0 | 19600.0000 SF | 43560.0000 | 0.4500 ACR |
| 2 | 4 Wheel Drive Tractor (Farm) | P | PRODUCTIVITY | 1.0000 ACR/HR | | |
| 3 | Mulch Spreader (1 ea) | P | DURATION | 0.4500 HR | | |
| 4 | Tiller (1 ea) | P | | | | |
| 5 | Primary Seeder (1 ea) | P | | | | |
| 6 | Seed, Fertilizer and Mulch | P | | | | |
| 20.04.91 Irrigation | | | | | | |
| 1 | Operating Engineers (2 ea) | P | W AREAST0 | 19600.0000 SF | 43560.0000 | 0.4500 ACR |
| 2 | 4 Wheel Drive Tractor (Farm) | P | PRODUCTIVITY | 0.0220 ACR/HR | | |
| 3 | Mulch Spreader (1 ea) | P | DURATION | 20.4545 HR | | |
| 4 | Tiller (1 ea) | P | | | | |
| 5 | Primary Seeder (1 ea) | P | | | | |
| 6 | Seed, Fertilizer and Mulch | P | | | | |
| 7 | Tubling Cost | W AREAST0 | 19600.0000 SF | / Divide by | 43560.0000 | 0.4500 ACR |

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20.04.91. Irrigation
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| 20.04.91. Irrigation | | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|--|----------------------------------|-----------------|-------------------------------|-------------|-------------|--------------|
| 1 | Truck Driver | D | 20.4545 HR M (R) Multiply by | | 1.0000 | 20.0000 HR |
| 2 | Trk,Hwy, 43,000 GVW, 6X4, 3 Axle | D | 20.4545 HR M (R) Multiply by | | 1.0000 | 20.0000 HR |
| 3 | Trlr,Water Tanker,4000Gal (1 ea) | D | 20.4545 HR M (R) Multiply by | | 1.0000 | 20.0000 HR |
| 5 | 2" Dist. lines w/ Sprinkler Hds. | P | 0.4500 ACR * Multiply by | | 1.0000 | 0.4500 ACR |
| 21 Demobilization | | | | | 1.0000 | LS |
| 21.01. 5 Remove Decontamination Area | | | | | 16.0000 | HRS |
| Laborers (3 ea) | P | 16.0000 HRS * | Multiply by | | 3.0000 | 48.0000 HR |
| Small Tools (3 ea) | P | 16.0000 HRS * | Multiply by | | 3.0000 | 48.0000 HR |
| HYD EXCAV,TRK MTD,0.500CY,TB,6X4 | P | 16.0000 HRS * | Multiply by | | 1.0000 | 16.0000 HR |
| Operating Engineers (1 ea) | P | 16.0000 HRS * | Multiply by | | 1.0000 | 16.0000 HR |
| Trk,Off-Hwy,R-Dump, 15-19CY, 25T | P | 16.0000 HRS * | Multiply by | | 1.0000 | 16.0000 HR |
| Truck Driver (1 ea) | P | 16.0000 HRS * | Multiply by | | 1.0000 | 16.0000 HR |
| 21.01.11 Barricades (Remove Temp. Fence) | | | | | 560.0000 | LF |
| W SITEPRO0 | | 560.0000 LF | | | 1.0000 | 560.0000 LF |
| PRODUCTIVITY | | 200.0000 LF /HR | | | | |
| DURATION | | 2.8000 HR | | | | |
| 1 | Laborers (2 ea) | D | 2.8000 HR M (R) Multiply by | | 2.0000 | 6.0000 HR |
| 2 | Small Tools (2 ea) | D | 2.8000 HR M (R) Multiply by | | 2.0000 | 6.0000 HR |
| 3 | Truck Drivers (1 ea) | D | 2.8000 HR M (R) Multiply by | | 1.0000 | 3.0000 HR |
| 4 | Trk,Hwy,10,000GVW,4X2, 1T-Pickup | D | 2.8000 HR M (R) Multiply by | | 1.0000 | 3.0000 HR |
| 5 | Flatbed, 8'x 12.0' (1 ea) | D | 2.8000 HR M (R) Multiply by | | 1.0000 | 3.0000 HR |
| 21.01.25 Roads & Parking (Scarify Roads) | | | | | 0.5000 | HRS |
| Operating Engineers (1 ea) | P | 0.5000 HRS * | Multiply by | | 1.0000 | 0.5000 HR |
| Grader,Motor, Artic, Cat 12-G | P | 0.5000 HRS * | Multiply by | | 1.0000 | 0.5000 HR |
| 5 Shank Ripper/Scarifyer (1 ea) | P | 0.5000 HRS * | Multiply by | | 1.0000 | 0.5000 HR |
| 21.01.91 Misc. Cleanup Allowance | | | | | 8.0000 | HRS |
| 1 | Laborers (2 ea) | P | 8.0000 HRS * | Multiply by | 2.0000 | 16.0000 HR |
| 2 | Small Tools (2 ea) | P | 8.0000 HRS * | Multiply by | 2.0000 | 16.0000 HR |
| 3 | Truck Drivers (1 ea) | P | 8.0000 HRS * | Multiply by | 1.0000 | 8.0000 HR |
| 4 | Trk,Hwy,10,000GVW,4X2, 1T-Pickup | P | 8.0000 HRS * | Multiply by | 1.0000 | 8.0000 HR |
| 5 | Flatbed, 8'x 12.0' (1 ea) | P | 8.0000 HRS * | Multiply by | 1.0000 | 8.0000 HR |
| 70. | ERC Cost/Scheduling Engineer | W DAYPRO0 | 23.0000 DAY M (R) Multiply by | | 2.6900 | 62.0000 HR |
| 70. | ERC Design Engineer | W DAYPRO0 | 23.0000 DAY M (R) Multiply by | | 1.7200 | 40.0000 HR |
| 70. | ERC Project Engineer | W DAYPRO0 | 23.0000 DAY M (R) Multiply by | | 2.2700 | 52.0000 HR |
| 70. | ERC Environmental Compliance | W DAYPRO0 | 23.0000 DAY M (R) Multiply by | | 0.0000 | 0.0000 HR |
| 70. | ERC Procurement | W DAYPRO0 | 23.0000 DAY M (R) Multiply by | | 1.6500 | 38.0000 HR |

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70. Project/Construction Mgmt & Supt
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| 70. Project/Construction Mgmt & Supt | REFERENCE | REF VALUE | OPERATOR | LOCAL INPUT | QUANTITY UOM |
|---------------------------------------|-----------|------------|-----------------------|-------------|-----------------|
| 70. ERC Project Management | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 3.3400 | 77.0000 HR |
| 70. ERC Quality Assurance | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 0.5400 | 12.0000 HR |
| 70. ERC Field Support | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 8.5200 | 196.0000 HR |
| 70. ERC Administrative Services | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 1.4100 | 32.0000 HR |
| 70. ERC Rad Con Engineer | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 0.4600 | 11.0000 HR |
| 70. ERC Safety Engineer | W DAYPRO0 | 23.0000 | DAY M (R) Multiply by | 1.4200 | 33.0000 HR |
| XXX. Demolition Waste | W A4 0 | 4000.0000 | BCF * Multiply by | 1.0000 | 4000.0000 BCF |
| XXX. Non-Contaminated Soil | W A1 0 | 50000.0000 | BCF * Multiply by | 1.0000 | 50000.0000 BCF |
| XXX. Contaminated Soil | W A3 0 | 0.0000 | BCF * Multiply by | 1.0000 | 0.0000 BCF |
| XXX. Top Excavation Length | W A5 0 | 80.0000 | LF * Multiply by | 1.0000 | 80.0000 LF |
| XXX. Top Excavation Width | W A6 0 | 80.0000 | LF * Multiply by | 1.0000 | 80.0000 LF |
| XXX. Bottom Area | W A7 0 | 400.0000 | SF * Multiply by | 1.0000 | 400.0000 SF |
| XXX. Hauling Distance for Borrow | W ADISBRO | 1.0000 | MIL * Multiply by | 1.0000 | 1.0000 MI |
| XXX. Groundwater Protection Samples | W A8 0 | 0.0000 | EA * Multiply by | 1.0000 | 0.0000 EA |
| XXX. Depth of Excavation | W A9 0 | 15.0000 | LF * Multiply by | 1.0000 | 15.0000 LF |
| XXX. Non-Contaminated Soil - Reduced | W ABURDN0 | 2129.6296 | LCY * Multiply by | 1.0000 | 2129.6296 LCY |
| XXX. Contaminated Soil | W ACSOIL0 | 0.0000 | LCY * Multiply by | 1.0000 | 0.0000 LCY |
| XXX. Site Area | W AREAST0 | 19600.0000 | SF * Multiply by | 1.0000 | 19600.0000 SF |
| XXX. Volume of Transition Zone Soil | W ATRSOL0 | 0.0000 | * Multiply by | 1.0000 | 30388.0000 LCY |
| XXX. Total Project Duration | W DAYPRO0 | 23.0000 | DAY * Multiply by | 1.0000 | 23.0000 DAY |
| XXX. Total Excavation Duration | W DAYS 0 | 9.0000 | DAY * Multiply by | 1.0000 | 9.0000 DAY |
| XXX. Days to Irrigate Site (1 Crew) | W IRRDAY0 | 0.0000 | * Multiply by | 1.0000 | 0.9183 DAY |
| XXX. Low Level Waste (LLW) Volume | W QTYLLW0 | 237.0000 | LCY * Multiply by | 1.0000 | 237.0000 LCY |
| XXX. Duration of In-Situ Monitoring | W SAMPHR0 | 18.0000 | HR * Multiply by | 1.0000 | 18.0000 HR |
| XXX. Regular LLW Samples - Mobile Lab | W SAMPMLO | 0.0000 | EA * Multiply by | 1.0000 | 0.0000 EA |
| XXX. Bottom Area Closure Sample Qty. | W SAMPCR0 | 1.0000 | EA * Multiply by | 1.0000 | 1.0000 EA |
| XXX. QC Sample Quantity and Analysis | W SAMPQ10 | 3.0000 | EA * Multiply by | 1.0000 | 3.0000 EA |
| XXX. Non-Contaminated Sample Quantity | W SAMPNC0 | 6.0000 | EA * Multiply by | 1.0000 | 6.0000 LF |
| XXX. Site Perimeter | W SITEPR0 | 560.0000 | LF * Multiply by | 1.0000 | 560.0000 LF |
| XXX. Spread/Compact Soil Quantity | W SPREAD0 | 0.0000 | * Multiply by | 1.0000 | 132142.0000 LCY |
| XXX. Total On-Site Samples | W SAMPTO0 | 6.0000 | EA * Multiply by | 1.0000 | 6.0000 EA |
| XXX. Total Off-Site Samples | W SAMPTFO | 4.0000 | EA * Multiply by | 1.0000 | 4.0000 EA |

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DETAILED ESTIMATE

U.S. Army Corps of Engineers
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Retention Basin Model - 3/30/98 - Rev. 2
01. Mobilization & Prep Work

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DETAIL PAGE 1

| 01.01. Mobilize Equipment & Facilities | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|---|-----|-----------|----------------|----------------|------------------|-----------|------------------|-----------|
| <hr/> | | | | | | | | | |
| 01. Mobilization & Prep Work | | | | | | | | | |
| 01.01. Mobilize Equipment & Facilities | | | | | | | | | |
| Note: | | | | | | | | | |
| 1. | Mob and demob will be one or two times per reactor area or 300 area depending on size. Estimates for mob and demob are completed apart from the waste site MCACES estimates on an EXCEL model, and will reflect the equipment and facility requirements called for in the models. | | | | | | | | |
| 2. | Mobilization of facilities such as office trailers, etc, (i.e. General Contractor mobilization) are excluded. | | | | | | | | |
| TOTAL Mobilize Equipment & Facilities | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 01.04. Setup/Construct Temp Facilities | | | | | | | | | |
| 01.04.05. Decon Fac. for Const. Equip/Veh. (Construct Decon Areas) | | | | | | | | | |
| Notes: | | | | | | | | | |
| The duration for this activity is 24 hours. | | | | | | | | | |
| BLT S1 Laborer Group (3 ea.) | 72.00 | HR | 11786 | 27.77 1,999 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 1,999 | 27.77 |
| BLT S1 OPERATING ENGINEERS (1 ea) | 24.00 | HR | 11788 | 31.56 757 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 757 | 31.56 |
| FPC S1 TRK,HWY,4X4,F250,3/4T,8800 GVW 4X4 3/4 TON PICK-UP - 1 ea | 24.00 | HR | T50FO004 | 0.00 0 | 8.89 213 | 0.00 0 | 0.00 0 | 8.89 213 | 8.89 |
| MIL S1 HYD EXCAV,TRK MTD,0.500CY,TB,6X4 | 24.00 | HR | H30GA002 | 0.00 0 | 53.57 1,286 | 0.00 0 | 0.00 0 | 53.57 1,286 | 53.57 |
| FPC S1 Small Tools - 3 ea | 72.00 | HR | XMIIXX020 | 0.00 0 | 1.57 113 | 0.00 0 | 0.00 0 | 1.57 113 | 1.57 |
| M USR S1 Construction Materials/Supplies Allowance | 1.00 | LS | | 0.00 0 | 0.00 0 | 2160.00 2,160 | 0.00 0 | 2160.00 2,160 | 2160.00 |
| M USR S1 Allowance for Tank Assume 1000 gal plastic tank for water collection | 1.00 | LS | | 0.00 0 | 0.00 0 | 1620.00 1,620 | 0.00 0 | 1620.00 1,620 | 1620.00 |
| TOTAL Decon Fac. for Const. Equip/Veh. | 24.00 | HR | | 2,757 | 1,612 | 3,780 | 0 | 8,149 | 339.54 |

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| 01.04. Setup/Construct Temp Facilities | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|--------------|------------|---------------|-----------|---------------|-----------|
| ----- | | | | | | | |
| 01.04.11. Barricades (Install Temp. Fence) | | | | | | | |
| Notes: | | | | | | | |
| Install construction barricade fence. The barricade is assumed to be located 30 ft. from the top of excavation. | | | | | | | |
| Output: | | | | | | | |
| Production rate = 100 LF/HR | | | | | | | |
| Material supply allowance is \$1.75/LF | | | | | | | |
| BLT S1 Laborer Group - 1 (2 ea.) | 11.00 HR 11786 | 27.77 305 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 305 | 27.77 |
| BLT S1 Truck Drivers (1 ea) | 6.00 HR 11792 | 32.48 195 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 195 | 32.48 |
| FPC S1 Trl,Hwy,4X2,F350,1T,10000 GVW 4X2 1-TON PICK-UP,10000 GVW - 1 ea | 6.00 HR T50FO005 | 0.00 0 | 8.60 52 | 0.00 0 | 0.00 0 | 8.60 52 | 8.60 |
| FPC S1 Truck Opt,Flatbed, 8' x 12.0' 8' x 12.0' - 1 ea | 6.00 HR T40XX014 | 0.00 0 | 0.61 4 | 0.00 0 | 0.00 0 | 0.61 4 | 0.61 |
| FPC S1 Small Tools - 2 ea | 11.00 HR XMIXX020 | 0.00 0 | 1.57 17 | 0.00 0 | 0.00 0 | 1.57 17 | 1.57 |
| M USR S1 Materials/Supply Allowance for Fence | 560.00 LF | 0.00 0 | 0.00 0 | 1.89 1,058 | 0.00 0 | 1.89 1,058 | 1.89 |
| TOTAL Barricades (Install Temp. Fence) | 560.00 LF | 500 | 73 | 1,058 | 0 | 1,631 | 2.91 |

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| 01.04. Setup/Construct Temp Facilities | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|-----------|-----------|-----------|------------------|------------------|------------------|
| 01.04.91. Waste Site Survey | | | | | | | |
| USR S1 Allowance for Site Survey | 1.00 LS | 0.00 0 | 0.00 0 | 0.00 0 | 1600.00 1,600 | 1600.00 1,600 | 1600.00 1,600 |
| TOTAL Waste Site Survey | | 0 | 0 | 0 | 1,600 | 1,600 | |
| TOTAL Setup/Construct Temp Facilities | | 3,257 | 1,684 | 4,838 | 1,600 | 11,380 | |

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| 01.06. Temp Relocatns/Roads/Struct/Util | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------|-----|---------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 01.06. Temp Relocatns/Roads/Struct/Util | | | | | | | | | |
| Notes: | | | | | | | | | |
| The unit rate was created using a detailed estimate on sites in the 100-BC Area, and by pro-rating to a cost/LCY of contaminated soil. This cost is for in-situ gravel access roads, and for asphalt repairs. | | | | | | | | | |
| 01.06.01. Roads (Site Road Maintenance) | | | | | | | | | |
| Notes: | | | | | | | | | |
| The unit rate of \$.58/LCY is from a separate EXCEL spreadsheet. Road length is assumed to be 625 LF. Asphalt patching is assumed at 1 time per 300 SY of road. Dust suppression is assumed to be 1 pass. | | | | | | | | | |
| USR S1 Site Road Maintenance | | | | 0.00 | 0.00 | 0.00 | 0.58 | 0.58 | |
| | 237.00 | | | 0 | 0 | 0 | 137 | 137 | 0.58 |
| TOTAL Roads (Site Road Maintenance) | 237.00 | LCY | | 0 | 0 | 0 | 137 | 137 | 0.58 |
| TOTAL Temp Relocatns/Roads/Struct/Util | 237.00 | LCY | | 0 | 0 | 0 | 137 | 137 | 0.58 |
| TOTAL Mobilization & Prep Work | | | | 3,257 | 1,684 | 4,838 | 1,737 | 11,518 | |

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02. Monitoring, Sampling, & Analysis

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| 02.08. Sampling Rad Contaminated Media | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|----------------|-----------|-----------|-----------|----------------|-----------|
| <hr/> | | | | | | | |
| 02. Monitoring, Sampling, & Analysis | | | | | | | |
| 02.08. Sampling Rad Contaminated Media | | | | | | | |
| (Radiation Monitoring) | | | | | | | |
| 02.08.05. Sub-Surface Soil (Field Screening/Take Samples) | | | | | | | |
| Notes: | | | | | | | |
| Duration for this activity is equal to the excavation/demolition duration. | | | | | | | |
| It is assumed that the Rad. Control Technician will be present during all | | | | | | | |
| excavation/demolition activities. | | | | | | | |
| ERC AB ERC Environmental Tech. (.5 ea | 36.00 HR 31000 | 60.25 2,169 | 0.00 0 | 0.00 0 | 0.00 0 | 60.25 2,169 | 60.25 |
| HAM AB RADIATION CONTROL TECH. (1 ea) | 72.00 HR 10T17 | 51.61 3,716 | 0.00 0 | 0.00 0 | 0.00 0 | 51.61 3,716 | 51.61 |
| TOTAL Sub-Surface Soil (Field Screen- | 72.00 HRS | 5,885 | 0 | 0 | 0 | 5,885 | 81.74 |

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| 02.08. Sampling Rad Contaminated Media | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------|-----|---------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 02.08.91. Excav. GW Prot. Sample Trenches | | | | | | | | | |
| Note: Number of trenches are yet to be determined by the project (for groundwater protection samples). Trench cost is \$750/ea. Since the projects have not decided if this work is needed it is set at \$0 for now. | | | | | | | | | |
| TOTAL Excav. GW Prot. Sample Trenches | | | | 0 | | 0 | | 0 | |
| 02.08.92. Site Certificaton Sampling | | | | | | | | | |
| Note: Activity includes the collection of certification samples for an area equal to the bottom area plus all side slopes. | | | | | | | | | |
| Sample Frequency = 1 sample/6264 SF (Minimum of 6) Production Rate = 3 samples/crew hr. | | | | | | | | | |
| M USR AB Materials/Supplies Allowance | | | | 0.00 | | 0.00 | | 5.40 | |
| | 1.00 | EA | | | 0 | 0 | 5 | 0 | |
| TOTAL Site Certificaton Sampling | 1.00 | EA | | ----- | ----- | ----- | ----- | ----- | ----- |
| | | | | 0 | 0 | 5 | 0 | 5 | 5.40 |
| TOTAL Sampling Rad Contaminated Media | | | | 5,885 | | 0 | | 0 | |
| | | | | | | 5 | | | |
| | | | | | | | 0 | | 5,890 |

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| 02.10. Radioactive Waste Analysis | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|---------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 02.10. Radioactive Waste Analysis | | | | | | | | | |
| 02.10.05. Rad. Anal. Veg./Sediment/Soil | | | | | | | | | |
| (Sample Analytical Costs, Mobile lab & Offsite) | | | | | | | | | |
| Notes: | | | | | | | | | |
| 1. LLW Samples - Sample frequency is 1 per 845 LCY with a minimum of 6. Cost per sample is \$1,100/Sample. | | | | | | | | | |
| 2. QC Samples - 5% of all samples, minimum of 3 ea. Cost is \$2,000/ea. | | | | | | | | | |
| 3. Site Certification Samples - Sample Frequency is 1 per 6264 SF of exposed area with a min. of 6 ea. Exposed area includes bottom area and all side slopes. Cost is \$2,000/ea. | | | | | | | | | |
| 4. Groundwater Protection Samples - These are retained in the model but set to show no cost until it is decided if this is required. Sample cost is \$2,000/ea. | | | | | | | | | |
| 5. Non-Contam. Samples - Sample frequency is total of 6 samples per site except for sites less than 6 LCY where it will be 1 sample per LCY. Sample cost is \$1,100/ea. | | | | | | | | | |
| USR AB Analyze Quality Control Samples - Off-Site Lab | 3.00 | EA | | 0.00 | 0.00 | 0.00 | 2000.00 | 2000.00 | |
| Assume 5% of the sum of all other samples. Minimum of 3 sample. | | | | 0 | 0 | 0 | 6,000 | 6,000 | 2000.00 |
| USR AB Analyze Site Certification Samples - On-Site Lab | 1.00 | EA | | 0.00 | 0.00 | 0.00 | 2000.00 | 2000.00 | |
| Assume 1 sample per 6,264 sq ft of bottom area plus side slope areas. Minimum of 6 samples. | | | | 0 | 0 | 0 | 2,000 | 2,000 | 2000.00 |
| USR AB Non-Contam Sample Quantity Assume 6 samples per site except for sites less than 6 LCY where it will be 1 sample per LCY. | 6.00 | EA | | 0.00 | 0.00 | 0.00 | 1100.00 | 1100.00 | |
| | | | | 0 | 0 | 0 | 6,600 | 6,600 | 1100.00 |
| TOTAL Rad. Anal. Veg./Sediment/Soil | | | | 0 | 0 | 0 | 14,600 | 14,600 | |
| TOTAL Radioactive Waste Analysis | | | | 0 | 0 | 0 | 14,600 | 14,600 | |
| TOTAL Monitoring, Sampling, & Analysis | | | | 5,885 | 0 | 5 | 14,600 | 14,600 | 20,490 |

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| 08.01. Contaminated Soil Collection | QUANTY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------------------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | |
| 08. Solids Collection & Containment | | | | | | | |
| 08.01. Contaminated Soil Collection | | | | | | | |
| (Excavate/Haul) | | | | | | | |
| 08.01.02. Excavation (Contaminated Soil) | | | | | | | |
| 08.01.02.01. Excavate/Load Contaminated Soil | | | | | | | |
| Work to be Performed: | | | | | | | |
| Excavate contaminated soil/buried waste by hydraulic excavator. | | | | | | | |
| Assumptions: | | | | | | | |
| 1. A 15% swell factor has been applied to bank soil volume. | | | | | | | |
| 2. Excavation rate is 83 LCY/HR (664 LCY/DAY) | | | | | | | |
| TOTAL Excavate/Load Contaminated Soil | HR | 0 | 0 | 0 | 0 | 0 | 0 |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | |
| 08.01.02.02. Provide Dust Suppression | | | | | | | |
| <hr/> | | | | | | | |
| Work to be Performed: | | | | | | | |
| Suppress dust by water spray. | | | | | | | |
| Output: | | | | | | | |
| Duration is equal to the duration of contaminated soil excavation. | | | | | | | |
| TOTAL Provide Dust Suppression | HR | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL Excavation (Contaminated Soil) | | 0 | 0 | 0 | 0 | 0 | 0 |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|--------------|--------------|-----------|-----------|--------------|-----------|
| ----- | | | | | | | |
| 08.01.03. Hauling (To Queue Area) | | | | | | | |
| Note: Haulage of contaminated soils and demolition debris from the excavation to the Queue area. Assume 3 trucks for the operation. Duration is equal to time when contaminated soil and debris are being excavated. | | | | | | | |
| BLT AB Truck Drivers (3 ea) | 24.00 HR 11792 | 32.48 780 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 780 | 32.48 |
| MIL AB TRK,HWY, 46,000 GVW, 6X4, 3 AXLE (3 ea.) | 24.00 HR T50PE002 | 0.00 0 | 37.08 890 | 0.00 0 | 0.00 0 | 37.08 890 | 37.08 |
| USR AB 20 Ton Tilt Trailer (For trucks to haul ERDF containers) (3 ea) | 24.00 HR YA1 | 0.00 0 | 3.28 79 | 0.00 0 | 0.00 0 | 3.28 79 | 3.28 |
| TOTAL Hauling (To Queue Area) | 8.00 HRS | ----- 780 | 969 | 0 | 0 | 1,748 | 218.53 |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|--------------|----------------|-----------|-----------|----------------|-----------|
| <hr/> | | | | | | | |
| 08.01.04. Stockpiling (Exc. Overburden) | | | | | | | |
| 08.01.04.01. Excavate and Stockpile | | | | | | | |
| Work to be Performed: | | | | | | | |
| Excavate overburden by hydraulic excavator and haul to stockpile. Assume 2 ea, 15 cy dump trucks per excavator. | | | | | | | |
| Production Rate: | | | | | | | |
| 146 loose cu yd per crew hour | | | | | | | |
| BLT S1 Heavy Equipment Operator (1 ea) - 1 ea. | 15.00 HR 11788 | 31.56 473 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 473 | 31.56 |
| MIL S1 HYD EXCAV, CRWLR, 2.00 CY BKT (1 ea) | 15.00 HR H25CA007 | 0.00 0 | 93.25 1,399 | 0.00 0 | 0.00 0 | 93.25 1,399 | 93.25 |
| BLT S1 Heavy Truck Driver (2 ea) | 29.00 HR 11792 | 32.48 942 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 942 | 32.48 |
| MIL S1 Trk,Off-Hwy,R-Dump, 15-19CY, 25T (2 ea) | 29.00 HR T55DJ002 | 0.00 0 | 54.34 1,576 | 0.00 0 | 0.00 0 | 54.34 1,576 | 54.34 |
| TOTAL Excavate and Stockpile | 2129.63 LCY | 1,415 | 2,975 | 0 | 0 | 4,390 | 2.06 |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|----------------|----------------|-------------|------------|----------------|-----------|
| ----- | | | | | | | |
| 08.01.04.02. Provide Dust Suppression | | | | | | | |
| Work to be Performed: | | | | | | | |
| Suppress dust by water spray. Apply crusting agent to stockpiled soil at the rate of 1 gal per 77 LCY. | | | | | | | |
| Output: | | | | | | | |
| Duration is equal to excavation duration for the overburden excavation. | | | | | | | |
| BLT S1 Truck Driver (1 ea) | 15.00 HR 11792 | 32.48 487 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 487 | 32.48 |
| - 1 ea | | | | | | | |
| FPC S1 Trk,Wtr,Off-Hwy, 6000GAL,CAT621E 6000 GALLON WITH CAT 621E TRAC | 15.00 HR T60KI002 | 0.00 0 | 67.85 1,018 | 0.00 0 | 0.00 0 | 67.85 1,018 | 67.85 |
| - 1 ea | | | | | | | |
| M USR S1 Material Cost for Soil Sement Agent, Assume 1 gal of Soil-Sement per 77 LCYs of non-contaminated soil. | 2129.63 LCY | 0.00 0 | 0.00 0 | 0.04 92 | 0.00 0 | 0.04 92 | 0.04 |
| TOTAL Provide Dust Suppression | 2129.63 LCY | 487 | 1,018 | 92 | 0 | 1,597 | 0.75 |
| TOTAL Stockpiling (Exc. Overburden) | | ----- 1,903 | ----- 3,993 | ----- 92 | ----- 0 | ----- 5,987 | |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|----------------|-----------|-----------|-----------|----------------|-----------|
| <hr/> | | | | | | | |
| 08.01.91. Frisking Tent Operations (Survey & Decon Trucks and Containers) | | | | | | | |
| 08.01.91.01. Low Activity Containers (Frisk Containers/Trucks) | | | | | | | |
| <p>Note: Frisking tent operation is assumed to occur only during the excavation of the contaminated material portion of the work scope.</p> | | | | | | | |
| USR AB Radiation Control Tech. (3 ea) | 24.00 HR | 48.46 1,163 | 0.00 0 | 0.00 0 | 0.00 0 | 48.46 1,163 | 48.46 |
| TOTAL Low Activity Containers | 8.00 HRS | ----- 1,163 | 0 | 0 | 0 | 1,163 | 145.38 |

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| 08.01. Contaminated Soil Collection | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------|-----|-----------|--------------|------------|-----------|-----------|--------------|-----------|
| <hr/> | | | | | | | | | |
| 08.01.91.02. Decontaminate Containers (Prepare Containers for Shipment) | | | | | | | | | |
| Work to be Performed: Close liner, secure tarp and spray/decon waste containers, if contaminated, prior to transport to disposal facility. Water is recycled for contaminated dust suppression | | | | | | | | | |
| Crew and Equipment: Fixed Price Contractor: 3 ea. Laborers Equipment: 1 ea. Pressure washer and 1 ea. 1,000 gal. portable water tank (cost included in construction cost). | | | | | | | | | |
| Output: Duration is equal to the duration of the excavation/haul activities in the contaminated zone. | | | | | | | | | |
| BLT S1 Laborer (3 ea) | 24.00 | S1 | 11786 | 27.77 666 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 666 | 27.77 |
| MIL S1 Press Washer, 5.4GPM, 3KSI,PORT | 8.00 | HR | W25HO002 | 0.00 0 | 2.50 20 | 0.00 0 | 0.00 0 | 2.50 20 | 2.50 |
| FPC S1 Small Tools - 3 ea | 24.00 | HR | XMIIXX020 | 0.00 0 | 1.57 38 | 0.00 0 | 0.00 0 | 1.57 38 | 1.57 |
| TOTAL Decontaminate Containers | 8.00 | HR | | 666 | 58 | 0 | 0 | 724 | 90.52 |
| TOTAL Frisking Tent Operations | | | | 1,830 | 58 | 0 | 0 | 1,887 | |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|--------------|-----------|--------------|-----------|--------------|-----------|
| <hr/> | | | | | | | |
| 08.01.92. Queue Area Operations | | | | | | | |
| Note: Includes installation of liners into containers and misc. activities necessary in queue area for the duration of the contaminated material excavation. Each container receives a liner. The quantity of container liners is based on the number of containers to be moved calculated at 12.87 LCY per container. Duration is the timeframe when contaminated soil and demolition waste are being excavated and hauled. | | | | | | | |
| BLT AB Laborers (2 ea) | 16.00 HR 11786 | 27.77 444 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 444 | 27.77 |
| HAM AB Radiation Control Tech. (.5 ea) | 4.00 HR 10T17 | 51.61 206 | 0.00 0 | 0.00 0 | 0.00 0 | 51.61 206 | 51.61 |
| USR AB Container liners | 19.00 EA | 0.00 0 | 0.00 0 | 24.31 462 | 0.00 0 | 24.31 462 | 24.31 |
| TOTAL Queue Area Operations | 8.00 HRS | 651 | 0 | 462 | 0 | 1,113 | 139.08 |

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Retention Basin Model - 3/30/98 - Rev. 2
08. Solids Collection & Containment

TIME 11:26:33
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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|----------------|-----------|-----------|-----------|----------------|----------------|
| <hr/> | | | | | | | |
| 08.01.93. Radiation Control Tech. Support | | | | | | | |
| Notes: | | | | | | | |
| Crew and Equipment: | | | | | | | |
| Rad Control Techs. - 1.5 ea. | | | | | | | |
| Duration: | | | | | | | |
| Total Excavation Duration | | | | | | | |
| HAM AB Radiation Control Tech. (1.5 ea) | 108.00 HR 10T17 | 51.61 5,574 | 0.00 0 | 0.00 0 | 0.00 0 | 51.61 5,574 | 51.61 5,574 |
| TOTAL Radiation Control Tech. Support | 72.00 HRS | 5,574 | 0 | 0 | 0 | 5,574 | 77.42 |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | |
| 08.01.94. Site Lighting | | | | | | | |
| Assumption is that no site lighting will be necessary since all work is assumed to be during daylight hours. | | | | | | | |
| TOTAL Site Lighting | | 0 | 0 | 0 | 0 | 0 | |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|-----------|-----------|--------------|-----------|--------------|-----------|
| <hr/> | | | | | | | |
| 08.01.95. PPE (Personal Prot. Clothing) | | | | | | | |
| 08.01.95.01. PPE (Subcontractor Supplied) | | | | | | | |
| Note: | | | | | | | |
| Disposable PPE @ \$9.50/set (excluding sales tax), 2 changes per day for 4 ERC personnel and 4 subcontractor personnel for the duration of contaminated material excavation. | | | | | | | |
| USR AB ERC PPE (Subcontractor Supplied) | 72.00 | 0.00 0 | 0.00 0 | 10.26 739 | 0.00 0 | 10.26 739 | 10.26 |
| USR AB S/C PPE (Subcontractor Supplied) | 72.00 | 0.00 0 | 0.00 0 | 10.26 739 | 0.00 0 | 10.26 739 | 10.26 |
| TOTAL PPE (Subcontractor Supplied) | | 0 | 0 | 1,477 | 0 | 1,477 | |

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| 08.01. Contaminated Soil Collection | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------------------|--------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | |
| 08.01.95.02. Laundry Services (No Cost item) | | | | | | | |
| Note: | | | | | | | |
| This item has been deactivated. It remains in the model for possible future use. Rates should be reviewed and updated. | | | | | | | |
| TOTAL Laundry Services | | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL PPE (Personal Prot. Clothing) | | 0 | 0 | 1,477 | 0 | 1,477 | |
| TOTAL Contaminated Soil Collection | | 10,736 | 5,019 | 2,031 | 0 | 17,786 | |
| TOTAL Solids Collection & Containment | | 10,736 | 5,019 | 2,031 | 0 | 17,786 | |

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10. Drums/Tanks/Structures/Misc.

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| 10.03. Structure Removal | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|----------------|----------------|-----------|-----------|----------------|-----------|
| ----- | | | | | | | |
| 10. Drums/Tanks/Structures/Misc. (Demolition and Removal) | | | | | | | |
| 10.03. Structure Removal | | | | | | | |
| 10.03.02. Demolition (Demolish concrete Structures) | | | | | | | |
| Note: Production rate is 5 LCY/Hr | | | | | | | |
| BLT AB Laborers (1 ea) | 47.00 HR 11786 | 27.77 1,305 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 1,305 | 27.77 |
| BLT AB Operating Engineers (1 ea) | 47.00 HR 11788 | 31.56 1,483 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 1,483 | 31.56 |
| MIL AB CONC PULVERIZER, 42"THICK, 30"W (ADD 3.00 CY HYD EXCAVATOR) | 47.00 HR H25LU049 | 0.00 0 | 13.07 614 | 0.00 0 | 0.00 0 | 13.07 614 | 13.07 |
| MIL AB HYD EXCAV, CRWLR, 2.88 CY BKT | 47.00 HR H25CA028 | 0.00 0 | 98.28 4,619 | 0.00 0 | 0.00 0 | 98.28 4,619 | 98.28 |
| UPB AB Small Tools (1 ea) | 47.00 HR XMIXX020 | 0.00 0 | 1.57 74 | 0.00 0 | 0.00 0 | 1.57 74 | 1.57 |
| TOTAL Demolition | 237.00 LCY | 2,789 | 5,307 | 0 | 0 | 8,096 | 34.16 |
| TOTAL Structure Removal | | 2,789 | 5,307 | 0 | 0 | 8,096 | |

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10. Drums/Tanks/Structures/Misc.

TIME 11:26:33
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| 10.06. Radioactive Specific Waste | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|----------|--------------|--------------|-----------|-----------|--------------|-----------|
| <hr/> | | | | | | | | | |
| 10.06. Radioactive Specific Waste | | | | | | | | | |
| Containment (Furnish/Fill) | | | | | | | | | |
| 10.06.01. LSA (Low Specific Activity) | | | | | | | | | |
| Shipping Containers (Loading Demolition Waste) | | | | | | | | | |
| Notes: | | | | | | | | | |
| 1. Production Rate is 70 LCY/Hr | | | | | | | | | |
| 2. This activity includes only the loading of the demolition waste prior | | | | | | | | | |
| to hauling it to the Queue area. The haulage from the hole to the | | | | | | | | | |
| Queue area is covered in 08.01.03 (Hauling to Queue Area). | | | | | | | | | |
| BLT AB Operating Engineers (1 ea) | 3.39 | HR | 11788 | 31.56 107 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 107 | 31.56 |
| MIL AB HYD EXCAV, CRWLR, 2.88 CY BKT (1 ea) | 3.39 | HR | H25CA028 | 0.00 0 | 98.28 333 | 0.00 0 | 0.00 0 | 98.28 333 | 98.28 |
| TOTAL LSA (Low Specific Activity) | 237.00 | LCY | | 107 | 333 | 0 | 0 | 440 | 1.85 |
| TOTAL Radioactive Specific Waste | | | | 107 | 333 | 0 | 0 | 440 | |
| TOTAL Drums/Tanks/Structures/Misc. | | | | 2,895 | 5,640 | 0 | 0 | 8,535 | |

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20. Site Restoration

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| 20.01. Earthwork | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | |
| 20. Site Restoration | | | | | | | |
| 20.01. Earthwork | | | | | | | |
| 20.01.03. Load/Haul Borrow (Backfill) | | | | | | | |
| Assumptions: | | | | | | | |
| 1. Assume borrow available on-site. No charge for material. | | | | | | | |
| 2. 10% added to account for compaction. | | | | | | | |
| 3. Hauling speed is 30 mph. Return speed is 40 mph. | | | | | | | |
| 4. Truck capacity is 15 loose cu yd, based on the following: | | | | | | | |
| - Average soil density at Hanford = 1.73ton/BCY | | | | | | | |
| - Weight limit on Hanford roads = 80,000 lbs | | | | | | | |
| - Weight of dump truck = 30,000 lbs | | | | | | | |
| 5. Truck dump time is 1.5 minutes. | | | | | | | |
| 6. Dust control is not covered here because it is covered in the placement item. One water truck will cover both. | | | | | | | |
| Output: | | | | | | | |
| 1. 219 LCY per crew hour (this is an 8 hr/day rate working 6.5 hr/shift) | | | | | | | |
| This rate is driven by the capacity of a 4.5 LCY loader. | | | | | | | |
| BLT AB Heavy Equipment Operator | | 31.56 | 0.00 | 0.00 | 0.00 | 31.56 | |
| - 1 ea | 10.00 HR 11788 | 316 | 0 | 0 | 0 | 316 | 31.56 |
| UPB AB Ldr,FE, WH, 4.50 CY, Artic, 966E | | 0.00 | 59.64 | 0.00 | 0.00 | 59.64 | |
| (1 ea) | 10.00 HR L40CA006 | 0 | 596 | 0 | 0 | 596 | 59.64 |
| BLT AB Heavy Truck Driver | | 32.48 | 0.00 | 0.00 | 0.00 | 32.48 | |
| Quantity calculated by parameter worksheet. | 30.00 HR 11792 | 974 | 0 | 0 | 0 | 974 | 32.48 |
| MIL AB Trk,Off-Hwy,R-Dump, 15-19CY, 25T | | 0.00 | 54.34 | 0.00 | 0.00 | 54.34 | |
| (number of trucks is determined by the NUMTRK Parameter) | 30.00 HR T55DJ002 | 0 | 1,630 | 0 | 0 | 1,630 | 54.34 |
| TOTAL Load/Haul Borrow (Backfill) | 2200.00 LCY | 1,290 | 2,227 | 0 | 0 | 3,517 | 1.60 |

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20. Site Restoration

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| 20.01. Earthwork | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------|-----|----------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 20.01.06. Spreading (Spread/Comp. Borrow) | | | | | | | | | |
| Activity: | | | | | | | | | |
| Spreading and compacting the stockpiled Non-Contaminated Soil and borrow. | | | | | | | | | |
| Output: | | | | | | | | | |
| 219 LCY per crew hour. | | | | | | | | | |
| BLT AB Heavy Truck Driver (1 ea) | | | | 32.48 | 0.00 | 0.00 | 0.00 | 32.48 | |
| - 1 ea | 10.00 | HR | 11792 | 325 | 0 | 0 | 0 | 325 | 32.48 |
| FPC AB Trk,Wtr,Off-Hwy, 6000GAL,Cat621E | | | | 0.00 | 67.85 | 0.00 | 0.00 | 67.85 | |
| 6000 GALLON WITH CAT 621E TRAC | 10.00 | HR | T60KI002 | 0 | 679 | 0 | 0 | 679 | 67.85 |
| - 1 ea | | | | | | | | | |
| BLT AB Heavy Equipment Operator (1 ea) | | | | 31.56 | 0.00 | 0.00 | 0.00 | 31.56 | |
| - 1 ea | 10.00 | HR | 11788 | 316 | 0 | 0 | 0 | 316 | 31.56 |
| GEN AB DOZER, CRWLR, 251-300 HP | | | | 0.00 | 86.82 | 0.00 | 0.00 | 86.82 | |
| (187-224 KW), PS (W/ U BLADE) | 10.00 | HR | T15Z6560 | 0 | 868 | 0 | 0 | 868 | 86.82 |
| (1 ea) | | | | | | | | | |
| TOTAL Spreading (Spread/Comp. Borrow) | 2200.00 | LCY | | 640 | 1,547 | 0 | 0 | 2,187 | 0.99 |
| TOTAL Earthwork | | | | 1,930 | 3,773 | 0 | 0 | 5,704 | |

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| 20.04. Revegetation and Planting | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------|-----|---------|-------------|-----------|---------------|-----------|---------------|-----------|
| <hr/> | | | | | | | | | |
| 20.04. Revegetation and Planting | | | | | | | | | |
| 20.04.01. Mech. Seeding with Fertilizer and Mulch | | | | | | | | | |
| Notes: | | | | | | | | | |
| 1. Seeding is assumed to occur during Sept.-Nov. timeframe. 2. Seed/Mulch/Fertilizer cost is \$330/acre (excluding sales tax). | | | | | | | | | |
| Output: | | | | | | | | | |
| 1. Production Rate = 1 Acre/crew hour | | | | | | | | | |
| BLT AB Operating Engineers (2 ea) | 1.00 | HR | 11788 | 31.56 32 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 32 | 31.56 |
| USR AB 4 Wheel Drive Tractor (Farm) (2 ea) | 1.00 | HR | YA2 | 0.00 0 | 7.50 8 | 0.00 0 | 0.00 0 | 7.50 8 | 7.50 |
| M USR AB Seed, Fertilizer and Mulch | 0.45 | ACR | | 0.00 0 | 0.00 0 | 356.40 160 | 0.00 0 | 356.40 160 | 356.40 |
| TOTAL Mech. Seeding with Fertilizer | 0.45 | HRS | | 32 | 8 | 160 | 0 | 199 | 443.20 |

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| 20.04. Revegetation and Planting | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------------------|-------------|-----------|---------------|-----------|---------------|-----------|
| ----- | | | | | | | |
| 20.04.04. Shrubs/Trees/Groundcover | | | | | | | |
| Note: Tubling planning of sage brush seedlings @ \$0.80/each. 1. Planting density is 400/acre 2. Planting is assumed to occur during Sept-Nov. timeframe 3. Productivity = 60 seedlings/crewmember/hour 4. Output = 1 acre per crew hour 5. Tubling cost = \$320/acre (excluding sales tax) | | | | | | | |
| BLT AB Laborers (6 ea) | 3.00 HR 11786 | 27.77 83 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 83 | 27.77 |
| UPB AB Small tools (6 ea) | 3.00 HR XMIXX020 | 0.00 0 | 1.57 5 | 0.00 0 | 0.00 0 | 1.57 5 | 1.57 |
| USR AB Tubling Cost | 0.45 ACR | 0.00 0 | 0.00 0 | 345.60 156 | 0.00 0 | 345.60 156 | 345.60 |
| TOTAL Shrubs/Trees/Groundcover | 0.45 ACR | ----- 83 | 5 | 156 | 0 | 244 | 541.20 |

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| 20.04. Revegetation and Planting | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|----------|--------------|---------------|-----------|----------------|----------------|-----------|
| <hr/> | | | | | | | | | |
| 20.04.91. Irrigation | | | | | | | | | |
| Work to be Performed: | | | | | | | | | |
| Irrigate site 4 times in late spring/early summer (over a 2 month period). Apply 1.0 inch of water/acre/irrigation event (27,154 gallons). Assume site is remote. Includes a 10,000 gal. holding tank with gas powered pump @ \$300/month for 2 months. Also includes 2" distribution lines with sprinkler heads @ \$2,000/acre. | | | | | | | | | |
| Output: | | | | | | | | | |
| 45 hour/acre (.022 acre/hr) for hauling water to a holding tank (remote). | | | | | | | | | |
| BLT AB Truck Driver - 1 ea | 20.00 | HR | 11792 | 32.48 650 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 650 | 32.48 |
| MIL AB Trk,Hwy, 43,000 GVW, 6X4, 3 Axle (1 ea) | 20.00 | HR | T50FO013 | 0.00 0 | 22.50 450 | 0.00 0 | 0.00 0 | 22.50 450 | 22.50 |
| MIL AB Trlr,Water Tanker,4000Gal (1 ea) (ADD TOWING TRUCK) | 20.00 | HR | T45XX029 | 0.00 0 | 9.61 192 | 0.00 0 | 0.00 0 | 9.61 192 | 9.61 |
| USR AB 10,000 gal holding tank w/gas powered pump (1 ea) | 2.00 | MO | | 0.00 0 | 300.00 600 | 0.00 0 | 0.00 0 | 300.00 600 | 300.00 |
| USR AB 2" Dist. lines w/ Sprinkler Hds. | 0.45 | ACR | | 0.00 0 | 0.00 0 | 0.00 0 | 2000.00 900 | 2000.00 900 | 2000.00 |
| TOTAL Irrigation | 0.45 | ACR | | 650 | 1,242 | 0 | 900 | 2,792 | 6204.16 |
| TOTAL Revegetation and Planting | | | | 764 | 1,254 | 316 | 900 | 3,235 | |
| TOTAL Site Restoration | | | | 2,695 | 5,028 | 316 | 900 | 8,939 | |

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21. Demobilization

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| 21.01. Removal of Temporary Facilities | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|---------|---------------------------|---------------|-----------|-----------|----------------|-----------|
| <hr/> | | | | | | | | | |
| 21. Demobilization | | | | | | | | | |
| Note: | | | | | | | | | |
| Because multiple sites will be cleaned up within an operable unit and a cost for mobilization between sites is already included, no allowance for demobilization is made. Only the the following costs for removal of are included here: | | | | | | | | | |
| 1. Removal of fencing 2. Removal of decontamination area 3. Removal of Temporary Utilities 4. Scarify new roads 5. Misc. Cleanup allowance 6. Post construction submittals 7. Final Topo | | | | | | | | | |
| 21.01. Removal of Temporary Facilities | | | | | | | | | |
| 21.01. 5. Remove Decontamination Area | | | | | | | | | |
| Note: | | | | | | | | | |
| The duration of this activity is assumed to be 2/3 of the Decontamination Area erection time. Erection time was 24 hrs. Therefore removal time is 24 x .67 = 16 hrs. | | | | | | | | | |
| BLT AB Laborers (3 ea) | | | | 27.77 48.00 HR 11786 | 0.00 1,333 | 0.00 0 | 0.00 0 | 27.77 1,333 | 27.77 |
| UPB AB Small Tools (3 ea) | | | | 0.00 48.00 HR XMIXX020 | 1.57 75 | 0.00 0 | 0.00 0 | 1.57 75 | 1.57 |
| MIL AB HYD EXCAV,TRK MTD,0.500CY,TB,6X4 | | | | 0.00 16.00 HR H30GA002 | 53.57 857 | 0.00 0 | 0.00 0 | 53.57 857 | 53.57 |
| BLT AB Operating Engineers (1 ea) | | | | 31.56 16.00 HR 11788 | 0.00 505 | 0.00 0 | 0.00 0 | 31.56 505 | 31.56 |
| MIL AB Trk,Off-Hwy,R-Dump, 15-19CY, 25T (1 ea) | | | | 0.00 16.00 HR T55DJ002 | 54.34 869 | 0.00 0 | 0.00 0 | 54.34 869 | 54.34 |
| BLT AB Truck Driver (1 ea) | | | | 32.48 16.00 HR 11792 | 0.00 520 | 0.00 0 | 0.00 0 | 32.48 520 | 32.48 |
| TOTAL Remove Decontamination Area | | | | 16.00 HRS | 2,358 | 1,802 | 0 | 4,160 | 259.97 |

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| 21.01. Removal of Temporary Facilities | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|----------|--------------|------------|-----------|-----------|--------------|-----------|
| <hr/> | | | | | | | | | |
| 21.01.11. Barricades (Remove Temp. Fence) | | | | | | | | | |
| Notes: | | | | | | | | | |
| 1. It was assumed that the fence could be removed twice as fast installing it. Installation rate was 100 LF/Hr, therefore the dismantling rate is 200 LF/Hr. | | | | | | | | | |
| 2. It was assumed that the removal crew is 2 laborers. Installation and removal require a flatbed truck with a driver (teamster) | | | | | | | | | |
| BLT AB Laborers (2 ea) | 6.00 | HR | 11786 | 27.77 167 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 167 | 27.77 |
| UPB AB Small Tools (2 ea) | 6.00 | HR | XMIXX020 | 0.00 0 | 1.57 9 | 0.00 0 | 0.00 0 | 1.57 9 | 1.57 |
| BLT AB Truck Drivers (1 ea) | 3.00 | HR | 11792 | 32.48 97 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 97 | 32.48 |
| MIL AB Trk,Hwy,10,000GVW,4X2, 1T-Pickup (1 ea) | 3.00 | HR | T50FO005 | 0.00 0 | 8.60 26 | 0.00 0 | 0.00 0 | 8.60 26 | 8.60 |
| MIL AB Flatbed, 8'x 12.0' (1 ea) (ADD TRUCK) | 3.00 | HR | T40XX014 | 0.00 0 | 0.61 2 | 0.00 0 | 0.00 0 | 0.61 2 | 0.61 |
| TOTAL Barricades (Remove Temp. Fence) | 560.00 | LF | | 264 | 37 | 0 | 0 | 301 | 0.54 |

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| 21.01. Removal of Temporary Facilities | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|--------|-----|----------|-------------|-------------|-----------|-----------|-------------|-----------|
| <hr/> | | | | | | | | | |
| 21.01.25. Roads & Parking (Scarify Roads) | | | | | | | | | |
| Notes: Includes a 12G grader with a 5 shank ripper/scarifier. Assumed two passes on road. Total job assumed to be 30 minutes. | | | | | | | | | |
| BLT AB Operating Engineers (1 ea) | 0.50 | HR | 11788 | 31.56 16 | 0.00 0 | 0.00 0 | 0.00 0 | 31.56 16 | 31.56 |
| UPB AB Grader,Motor, Artic, Cat 12-G (1 ea) | 0.50 | HR | G15CA003 | 0.00 0 | 34.49 17 | 0.00 0 | 0.00 0 | 34.49 17 | 34.49 |
| USR AB 5 Shank Ripper/Scarifyer (1 ea) for 12G Grader (Blue Book) | 0.50 | HR | YA6 | 0.00 0 | 1.18 1 | 0.00 0 | 0.00 0 | 1.18 1 | 1.18 |
| TOTAL Roads & Parking (Scarify Roads) | 0.50 | HRS | | 16 | 18 | 0 | 0 | 34 | 67.23 |

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Retention Basin Model - 3/30/98 - Rev. 2
21. Demobilization

TIME 11:26:33
DETAIL PAGE 30

| 21.01. Removal of Temporary Facilities | QUANTY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|--------|-----|----------|--------------|------------|-----------|-----------|--------------|-----------|
| <hr/> | | | | | | | | | |
| 21.01.91. Misc. Cleanup Allowance | | | | | | | | | |
| Notes: | | | | | | | | | |
| Activity includes 2 laborers and a flatbed truck with driver for 8 hours to perform misc. cleanup activities around the site. | | | | | | | | | |
| BLT AB Laborers (2 ea) | 16.00 | HR | 11786 | 27.77 444 | 0.00 0 | 0.00 0 | 0.00 0 | 27.77 444 | 27.77 |
| UPB AB Small Tools (2 ea) | 16.00 | HR | XMIXX020 | 0.00 0 | 1.57 25 | 0.00 0 | 0.00 0 | 1.57 25 | 1.57 |
| BLT AB Truck Drivers (1 ea) | 8.00 | HR | 11792 | 32.48 260 | 0.00 0 | 0.00 0 | 0.00 0 | 32.48 260 | 32.48 |
| MIL AB Trk,Hwy,10,000GVW,4X2, 1T-Pickup (1 ea) | 8.00 | HR | T50FO005 | 0.00 0 | 8.60 69 | 0.00 0 | 0.00 0 | 8.60 69 | 8.60 |
| MIL AB Flatbed, 8'x 12.0' (1 ea) (ADD TRUCK) | 8.00 | HR | T40XX014 | 0.00 0 | 0.61 5 | 0.00 0 | 0.00 0 | 0.61 5 | 0.61 |
| TOTAL Misc. Cleanup Allowance | 8.00 | HRS | | 704 | 99 | 0 | 0 | 803 | 100.37 |
| TOTAL Removal of Temporary Facilities | | | | 3,342 | 1,956 | 0 | 0 | 5,297 | |

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Retention Basin Model - 3/30/98 - Rev. 2
21. Demobilization

TIME 11:26:33
DETAIL PAGE 31

| 21.06. Submittals | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------|-----|---------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 21.06. Submittals | | | | | | | | | |
| 21.06.05. Post Construction Submittals | | | | | | | | | |
| Note: | | | | | | | | | |
| This is an allowance of \$5,000. | | | | | | | | | |
| TOTAL Post Construction Submittals | | | | 0 | 0 | 0 | 5,000 | 5,000 | |

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21. Demobilization

TIME 11:26:33
DETAIL PAGE 32

| 21.06. Submittals | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---|----------|-----|---------|-------|----------|----------|----------|------------|-----------|
| <hr/> | | | | | | | | | |
| 21.06.06. As Built Drawings (Final Topo) | | | | | | | | | |
| Note: This is an allowance of \$1,600. | | | | | | | | | |
| TOTAL As Built Drawings (Final Topo) | | | | 0 | 0 | 0 | 1,600 | 1,600 | |
| TOTAL Submittals | | | | 0 | 0 | 0 | 6,600 | 6,600 | |
| TOTAL Demobilization | | | | 3,342 | 1,956 | 0 | 6,600 | 11,897 | |

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U.S. Army Corps of Engineers
PROJECT 1607N1: HANFORD: ER PROGRAM - REMEDIATION - IRM IMPLEMENTATION
Retention Basin Model - 3/30/98 - Rev. 2
70. Project/Construction Mgmt & Supt

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DETAIL PAGE 33

| | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--|----------|-----|---------|----------------|-----------|-----------|-----------|----------------|-----------|
| 70. Project/Construction Mgmt & Supt | | | | | | | | | |
| ERC AB ERC Cost/Scheduling Engineer | 62.00 | HR | 21000 | 56.04 3,474 | 0.00 0 | 0.00 0 | 0.00 0 | 56.04 3,474 | 56.04 |
| ERC AB ERC Design Engineer | 40.00 | HR | 32000 | 65.03 2,601 | 0.00 0 | 0.00 0 | 0.00 0 | 65.03 2,601 | 65.03 |
| ERC AB ERC Project Engineer | 52.00 | HR | 32000 | 65.03 3,382 | 0.00 0 | 0.00 0 | 0.00 0 | 65.03 3,382 | 65.03 |
| ERC AB ERC Procurement | 38.00 | HR | 41000 | 47.74 1,814 | 0.00 0 | 0.00 0 | 0.00 0 | 47.74 1,814 | 47.74 |
| ERC AB ERC Project Management | 77.00 | HR | 51000 | 74.98 5,773 | 0.00 0 | 0.00 0 | 0.00 0 | 74.98 5,773 | 74.98 |
| ERC AB ERC Quality Assurance | 12.00 | HR | 52000 | 63.43 761 | 0.00 0 | 0.00 0 | 0.00 0 | 63.43 761 | 63.43 |
| ERC AB ERC Field Support | 196.00 | HR | 53000 | 50.32 9,863 | 0.00 0 | 0.00 0 | 0.00 0 | 50.32 9,863 | 50.32 |
| ERC AB ERC Administrative Services | 32.00 | HR | 55000 | 28.39 908 | 0.00 0 | 0.00 0 | 0.00 0 | 28.39 908 | 28.39 |
| ERC AB ERC Rad Con Engineer | 11.00 | HR | 35000 | 63.43 698 | 0.00 0 | 0.00 0 | 0.00 0 | 63.43 698 | 63.43 |
| ERC AB ERC Safety Engineer | 33.00 | HR | 58000 | 56.44 1,863 | 0.00 0 | 0.00 0 | 0.00 0 | 56.44 1,863 | 56.44 |
| TOTAL Project/Construction Mgmt & Supt | | | | 31,137 | 0 | 0 | 0 | 31,137 | |

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U.S. Army Corps of Engineers
PROJECT 1607N1: HANFORD: ER PROGRAM - REMEDIATION - IRM IMPLEMENTATION
Retention Basin Model - 3/30/98 - Rev. 2
XXX. Estimate Quantities

TIME 11:26:33

| XXX.XX. Input Quantities | | | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|---------------------------------|-----------------------------|--|----------|-----|---------|-----------|-----------|-----------|-----------|------------|-----------|
| XXX. Estimate Quantities | | | | | | | | | | | |
| XXX.XX. Input Quantities | | | | | | | | | | | |
| USR | Demolition Waste | | 4000.00 | BCF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Non-Contaminated Soil | | 50000 | BCF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Top Excavation Length | | 80.00 | LF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Top Excavation Width | | 80.00 | LF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Bottom Area | | 400.00 | SF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Hauling Distance for Borrow | | 1.00 | MI | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Depth of Excavation | | 15.00 | LF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| TOTAL Input Quantities | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

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XXX. Estimate Quantities

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| XXX.YY. Additional Quantities | | | QUANTITY | UOM | CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|--------------------------------------|----------------------------------|--|----------|-----|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| XXX.YY. Additional Quantities | | | | | | | | | | | |
| USR | Non-Contaminated Soil - Reduced | | 2129.63 | LCY | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Site Area | | | | 19600 SF | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Volume of Transition Zone Soil | | 30388 | LCY | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Total Project Duration | | | | 23.00 DAY | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Total Excavation Duration | | 9.00 | DAY | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Days to Irrigate Site (1 Crew) | | | | 0.92 DAY | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Low Level Waste (LLW) Volume | | 237.00 | LCY | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Duration of In-Situ Monitoring | | | | 18.00 HR | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Bottom Area Closure Sample Qty. | | 1.00 | EA | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | QC Sample Quantity and Analysis | | | | 3.00 EA | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Non-Contaminated Sample Quantity | | 6.00 | LF | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Site Perimeter | | | | 560.00 LF | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Spread/Compact Soil Quantity | | 132142 | LCY | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Total On-Site Samples | | | | 6.00 EA | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| USR | Total Off-Site Samples | | 4.00 | EA | | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 | 0.00 0 |
| TOTAL Additional Quantities | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

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DETAILED ESTIMATE

U.S. Army Corps of Engineers
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Retention Basin Model - 3/30/98 - Rev. 2
XXX. Estimate Quantities

TIME 11:26:33
DETAIL PAGE 36

| XXX.YY. Additional Quantities | QUANTITY UOM CREW ID | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|-------------------------------|----------------------|--------|----------|----------|----------|------------|-----------|
| TOTAL Estimate Quantities | | 0 | 0 | 0 | 0 | 0 | |
| TOTAL HANFORD: ER PROGRAM | | 59,948 | 19,327 | 7,191 | 23,837 | 110,303 | |

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U.S. Army Corps of Engineers
PROJECT 1607N1: HANFORD: ER PROGRAM - REMEDIATION - IRM IMPLEMENTATION
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** PROJECT DIRECT SUMMARY - FEATURE **

TIME 11:26:33
SUMMARY PAGE 1

| | QUANTITY UOM | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST | UNIT COST |
|-------------------------------------|--------------|--------|----------|----------|----------|------------|-----------|
| 01 Mobilization & Prep Work | 3,257 | 1,684 | 4,838 | 1,737 | 11,518 | | |
| 02 Monitoring, Sampling, & Analysis | 5,885 | 0 | 5 | 14,600 | 20,490 | | |
| 08 Solids Collection & Containment | 10,736 | 5,019 | 2,031 | 0 | 17,786 | | |
| 10 Drums/Tanks/Structures/Misc. | 2,895 | 5,640 | 0 | 0 | 8,535 | | |
| 20 Site Restoration | 2,695 | 5,028 | 316 | 900 | 8,939 | | |
| 21 Demobilization | 3,342 | 1,956 | 0 | 6,600 | 11,897 | | |
| 70 Project/Construction Mgmt & Supt | 31,137 | 0 | 0 | 0 | 31,137 | | |
| TOTAL HANFORD: ER PROGRAM | 59,948 | 19,327 | 7,191 | 23,837 | 110,303 | | |
| FIELD OH | | | | | 1,823 | | |
| SUBTOTAL HOME OFC | | | | | 112,126 | | |
| SUBTOTAL PROFIT | | | | | 547 | | |
| SUBTOTAL BOND | | | | | 112,673 | | |
| SUBTOTAL B&O TAX | | | | | 1,276 | | |
| TOTAL INCL INDIRECTS DIR DIST | | | | | 113,949 | | |
| SUBTOTAL G & A | | | | | 547 | | |
| SUBTOTAL CONTINGN | | | | | 114,496 | | |
| TOTAL INCL OWNER COSTS | | | | | 105 | | |
| | | | | | 114,601 | | |
| | | | | | 21,682 | | |
| | | | | | 136,283 | | |
| | | | | | 5,506 | | |
| | | | | | 141,789 | | |
| | | | | | 22,261 | | |
| | | | | | 164,050 | | |

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U.S. Army Corps of Engineers
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** CONTRACTOR DIRECT SUMMARY **

TIME 11:26:33
SUMMARY PAGE 2

| | QUANTITY UOM | LABOR | EQUIPMNT | MAT/SUPP | UNIT CST | TOTAL COST |
|---------------------|--------------|--------|----------|----------|----------|------------|
| AB No Markup Items | 54,121 | 13,592 | 2,261 | 22,100 | | 92,074 |
| S1 Prime Contractor | 5,826 | 5,735 | 4,930 | 1,737 | | 18,229 |

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U.S. Army Corps of Engineers
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** CONTRACTOR INDIRECT SUMMARY **

TIME 11:26:33
SUMMARY PAGE 3

| | TOTAL DIRECT | FIELD OH | HOME OFC | PROFIT | BOND | B&O TAX | TOTAL COST | UNIT COST |
|---------------------|--------------|----------|----------|--------|------|---------|------------|-----------|
| AB No Markup Items | 92,074 | 0 | 0 | 0 | 0 | 0 | 92,074 | |
| S1 Prime Contractor | 18,229 | 1,823 | 547 | 1,276 | 547 | 105 | 22,527 | |

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ERROR REPORT

U.S. Army Corps of Engineers
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Retention Basin Model - 3/30/98 - Rev. 2

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ERROR PAGE 1

R2029: No Crew Database - No Crew Summaries or Reprice
R2032: 020805 In Situ Moni Detail item has zero quantity - no costs reported
R2032: 020892 ERC Sampler Detail item has zero quantity - no costs reported
R2032: 020892 RADIATION CO Detail item has zero quantity - no costs reported
R2032: 021005 Analyze LLW Detail item has zero quantity - no costs reported
R2032: 021005 Groundwater Detail item has zero quantity - no costs reported
R2032: 08010201 Heavy Equipm Detail item has zero quantity - no costs reported
R2032: 08010201 HYD EXCAV, C Detail item has zero quantity - no costs reported
R2032: 08010202 Heavy Truck Detail item has zero quantity - no costs reported
R2032: 08010202 Trl,Wtr,Off- Detail item has zero quantity - no costs reported
R2032: 08019102 Water Dispos Detail item has zero quantity - no costs reported
R2032: 200401 Mulch Spread Detail item has zero quantity - no costs reported
R2032: 200401 Tiller (1 e Detail item has zero quantity - no costs reported
R2032: 200401 Primary Seed Detail item has zero quantity - no costs reported
R2032: 200404 Grade 23 Sup Detail item has zero quantity - no costs reported
R2032: 200404 Trk,Hwy, 8,8 Detail item has zero quantity - no costs reported
R2032: 70 ERC Environm Detail item has zero quantity - no costs reported
R2032: XXXXXX Contaminated Detail item has zero quantity - no costs reported
R2032: XXXXXX Groundwater Detail item has zero quantity - no costs reported
R2032: XXXYY Contaminated Detail item has zero quantity - no costs reported
R2032: XXXYY Regular LLW Detail item has zero quantity - no costs reported

* * * END OF ERROR REPORT * * *

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